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THE PRE-WAR PATTERN
Raises the Question of Post-War Policy
Some fifty or more years of livestock sanitary work directed by the public service in collaboration with local practitioners cut the pattern for veterinary medicine used during the five years of forced animal production required to supply the needs of a planetary war.
The task was to exterminate or master the major plagues of farm animals through resort to contemporary science and, unfortunately, to frustrate the use of unprofessional practices and subversive tactics through education, argument, and appeal to common sense.
The award is well-nourished armies and stacks of surplus for the less fortunate together with peacetime security. The pattern should not be replaced by that of unprofessional ethics.
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A Review of the Epizootiology of Equine Encephalomyelitis in the United States

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Washington, D. C.

ALTHOUGH the causative filterable virus was not discovered until 1930,[1] there is every reason to believe that infectious, or epizootic, equine encephalomyelitis had existed in the United States for decades before that time. What is now believed to have been the same disease occurred in the form of severe outbreaks involving one or several states at intervals of several years prior to 1930. Annually, for the past fifteen years, the malady has been seasonally epizoötic over wide areas in the country.

During the early 1930's, the disease rapidly extended eastward. Recorded cases reached the peak numbers of 173,889 in 1937 and 184,662 in 1938.[2] In 1939, the western type of the virus was found as far east as Kentucky, and in 1940, it was identified in Alabama.[3] Meanwhile, an especially acute, highly fatal form of the disease appeared in 1933 in several states along the Atlantic Coast. Virus from these cases was soon found to differ, immunologically, from the numerous previously isolated western strains.[4,5,6] These and all subsequent strains of virus isolated from cases along the Atlantic seaboard have been identified as being of the same immunologic type, which is referred to as "eastern."

The first evidence to indicate that the eastern virus was not to remain confined to the Atlantic Coast came when this type of virus, as well as western, was demonstrated in Alabama in 1940.[3] A localized outbreak of equine encephalomyelitis occurred during April and May, 1941, in the vicinity of Brownsville, Texas. Eastern type virus was isolated from a number of these cases.[7,8] Later in the season the disease spread, and two strains of virus from cases that occurred several hundred miles inland from the Gulf of Mexico were identified as being of the eastern type.[8] In 1941, western type virus was identified in Michigan, only to be followed in 1942 by the demonstration of eastern virus in the same general locality.[9] Thus, it is known that the eastern virus is no longer confined to the eastern seaboard or the Gulf Coast. This fact is discussed later in this review under the heading of "Distribution of Eastern and Western Types of Virus."

Prevalence of the Disease

The U. S. Bureau of Animal Industry began accumulation of epizoötiological data on infectious equine encephalomyelitis in 1935. From 1935 through 1944, almost 500,000 cases have been reported.[2,10] The relative incidence of the disease during these ten years is shown in figure 1. Before 1935, only estimates of the number of cases were obtainable; in later years, increasingly accurate counts of recorded cases have become available. In consideration of the probable numbers of cases that have been skipped, either before reporting began or in the course of development of the system, or through lack of adequate facilities

From the Pathological Division, Bureau of Animal Industry, Agricultural Research Administration, U. S. Department of Agriculture, Washington, D. C.

for reporting, it may be estimated that no less than 1,000,000 cases of the disease have occurred in the United States since 1930.

From 1930[11] to 1945,[12] the horse and mule population on farms of the country has decreased from 19 million to an estimated 13 million, in round numbers. Encephalomyelitis has undoubtedly been one of the important factors in this reduction, although the downward trend began earlier with the beginning of the development of mechanically powered equipment. On the basis that 1,000,000 solipeds have been attacked by the disease, it may be estimated from the average mortality experienced from year to year that possibly as many as 300,000 horses and mules have succumbed. This is a small number in contrast with the total population, but the number itself fails to express the discouragement wrought by the disease among breeders and farmers. In partial consequence of this, breeding and animal power are being abandoned at an accelerated rate.

Occurrence, Transmission, and Spread of the Disease.—Equine encephalomyelitis has followed a definite seasonal pattern during the past fifteen years. Generally, few if any cases are reported before March or April. A few clinical diagnoses are, however, made at that time of the year, and there is on record at least one proved case of eastern type infection which occurred in midwinter in a southern state.[13] With the advent of warm weather, an increasing number of cases occur each month. The truly epizoötic season may be said to begin in June. The distribution and incidence of the disease reach a peak in July, August, or September or occasionally as late as October in some areas. With the occurrence of cool weather and frosts, the disease recedes rapidly.

The malady is generally more prevalent in swampy, poorly drained areas, along water courses, in the vicinity of lakes, or in tidewater regions. In semiarid regions, as well as those which have moderate to heavy rainfall in the summer, marked increases in numbers of cases frequently follow heavy rains, especially if hot, humid weather ensues. Outbreaks of considerable proportions have occurred during unusually dry, hot seasons, but this has been more common in irrigated regions. Mules are generally conceded to be less susceptible than horses.[14] As would be expected, the incidence is higher in young animals, especially in localities where the disease has been prevalent for several seasons.

The disease is most prevalent in pastured animals or in those working in the fields. It has never been transmitted through ordinary contact between affected and normal animals in the absence of insects, so far as has been shown. Infection through scarification of the oral mucosa and through the nose has been accomplished experimentally, but there is no evidence to indicate that either of these routes is of importance in the natural disease. Quoting Meyer[15], "The lack of obvious connections between cases of encephalomyelitis is one of the striking and constant features of encephalomyelitis." The disease season coincides with insect prevalence, and, since the virus is present in the blood of animals in the early stages in the great majority of instances, insect transmission is wholly plausible. Proof of this mode of transmission was first established by Kelser whose epochal experiments with mosquitoes in 1932 and 1933[16] initiated a long series of remarkably fruitful investigations in the field of insect transmission of equine encephalomyelitis. At least six species of mosquitoes of the genus Aedes have been found capable of transmitting the eastern virus, and at least nine species of the same genus have been shown to convey the western virus under experimental conditions[17,18] Not one of these species is generally prevalent over the country, but several have quite wide distribution. Hammon and associates[19] isolated five strains of western encephalomyelitis virus from *Culex tarsalis*, collected in the Yakima Valley, Washington, where the disease was both epidemic and epizoötic. Later, these same investigators accomplished repeated isolations of virus from this and two other species of the genus Culex, *viz.*, *Culex inornata* Williston and *Culex pipiens* L., and also from *Anopheles maculipennis freeborni* Aitken. Finally, *C. tarsalis* and two Culiseta species have transmitted the western virus in the laboratory.[20] Thus, the case against *C. tarsalis* as a potential vector has apparently been completely proved. That this species is the chief vector, at least in some areas, is indicated by its prevalence and activity in relation to epizootics of the disease. In other areas, however, the bionomics of *C. tarsalis* may not

fit into the epizoötic picture, and other species are then to be sought.*

No definite evidence has yet been presented to show how and where the virus of encephalomyelitis is maintained from one epizoötic season to the next. Horses, mules, or asses do not become permanent carriers so far as is known, but the possibility deserves wider investigation.

It has been determined that the spotted fever tick, *Dermacentor andersoni* Stiles, is capable of transmitting the infection experimentally, and that the virus may pass from one generation of ticks to another through the eggs and larvae.[21] Passage of virus through the molt of larvae to nymphs of *Dermacentor variabilis* Say and *Rhipicephalus sanguineus* has also been reported[22]. As ticks are notoriously long-lived arthropods under certain conditions, it is conceivable that they might harbor the virus for long periods. Generally speaking, ticks are most prevalent in the spring and early summer when encephalomyelitis first appears, and they might introduce the virus to equine animals from some as yet undisclosed animal reservoir upon which they feed. Nevertheless, since naturally infected ticks have not been discovered, it seems unlikely that they are important as vectors in the direct transmission of the disease to the horse.

The western virus of encephalomyelitis has been isolated repeatedly from so-called cone nosed or assassin bugs, *Triatoma sanguisuga* LeConte[23]. Transmission experiments with these blood-sucking bugs indicate that they could be implicated as vectors. *T. sanguisuga* is said to survive through the winter in rodent burrows and nests. It appears improbable, however, that

*Since preparation of this article, the report by S. E. Sulkin (Science, 101, (1945): 381) of recovery of equine encephalomyelitis virus (western type) from chicken mites (*Dermanyssus gallinae*) has come to the writers' attention, thus adding another potential vector.

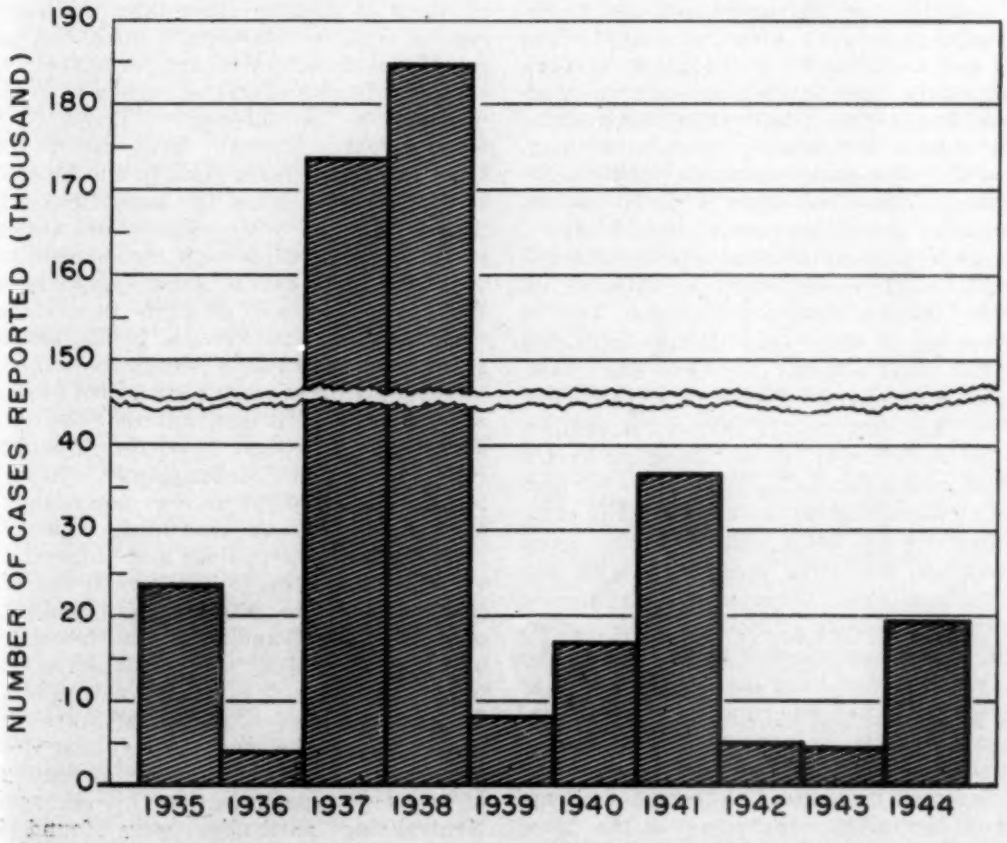

Fig. 1—The incidence of infectious equine encephalomyelitis in the United States, 1935 through 1944, according to reports received by the Bureau of Animal Industry.

Reduviidae are commonly engaged vectors, considering their comparatively limited numbers and distribution.

Probably all kinds of blood-sucking insects which feed on horses and other animals are potential transmitters of encephalomyelitis. Thus, stable flies, deer flies horse flies, etc. have been suspected from time to time. But there is no more than circumstantial evidence against any of them. Whether flies might act as more than mechanical carriers is problematical.

Repeated search has been made for species other than the equine, which might be reservoirs of the virus. Naturally infected pheasants,[31,32,34] pigeons,[32] prairie chicken,[35] and deer[35] have been found. Meyer early suspected that man was susceptible to the disease. Sizable epidemics of the disease in man were experienced in 1938 and 1941,[24] and numerous additional sporadic cases have been reported. Both eastern and western types of the infection have been demonstrated. The possible interrelationship of man and the equine species with respect to infections with the equine virus has not been clarified, though it appears that either may develop inapparent infections as well as frank encephalomyelitis. The opinion has been expressed that man, as well as the horse and mule, acquires the disease from the same general source, probably through mosquito bites chiefly.

Infection of equine species with encephalomyelitis virus is almost invariably followed, in the event of recovery, by the formation of virus-neutralizing antibodies in the blood serum. In some few cases, these may endure for a comparatively short time,[25] but they usually persist for months, so far as is known. It is not necessary for frank encephalomyelitis to develop for neutralizing substances to appear. The antibodies develop after inapparent or occult infections, and after vaccination with formalin-inactivated virus such as is utilized in the present-day chicken-embryo vaccine. The inoculation of encephalomyelitis virus by routes other than the intracerebral, in horses and other experimental animals, frequently results in inapparent infection. A horse experimentally exposed to the bites of infected mosquitoes developed an inapparent infection with virus in the blood stream, but essentially without any other detected abnormality.[25] After the first few days, repeated attempts to demonstrate virus in the blood failed. The animal was later found to be immune when exposed intracerebrally.

From the accumulated available evidence, it may be postulated that similar occurrences are frequent in the course of encephalomyelitis epizoötics. The average incidence of frank encephalomyelitis, even in severe outbreaks, seldom exceeds 10 per 1,000 presumably exposed animals, and generally is less than 5 per 1,000. But, as has been shown by repeated surveys,[26,27] among the remaining apparently uninvolved hundreds of horses, considerable numbers develop neutralizing antibodies. The generally accepted explanation is infection without symptoms.

Several species of other animals, including barnyard fowl and other birds, have been found to carry neutralizing substances also. Birds and other animals outside the epizoötic areas were generally negative. The inference is plain that considerable numbers of animals other than the equine species contract inapparent infections and constitute transitory if not permanent reservoirs. In the course of mosquito transmissions in the laboratory, Davis,[17] and Hammon and Reeves[18] have shown that virus circulates for a time in the blood of birds, following bites by mosquitoes artificially infected with eastern or western virus. Some birds develop encephalitis and die, but others fail to show symptoms although their blood develops neutralizing antibodies. In the writers' hands, several groups of pheasants inoculated intracerebrally with western virus failed to show any evidence of illness, but the virus was demonstrated in their blood for three days after inoculation.[28] Subsequently, when the birds were killed, virus was not found in any of the organs examined, which included brain, spleen, liver and kidneys.

Some time after, it had been found that pigeons could be infected with encephalomyelitis virus,[29] and after Ten Broeck had advanced the theory that birds act as reservoir hosts for the virus,[30] naturally affected pheasants[31] and pigeons[32] were identified. Van Roekel and Clarke[33] and Beaudette[34] have studied a number of enzoötics of eastern type infection in pheasants. Neutralizing antibodies were found by Beaudette in surviving birds. A natural infection with western virus has been dis-

covered in a wild prairie chicken.[35] It is of special interest to note that the bird, though appearing ill on the ground, was able to fly; also, that virus was isolated from the spleen as well as from the brain. A strain of western virus has been isolated from a deer.[35] McNutt isolated western virus and also hog-cholera virus from a pig under unusual circumstances.[35a] These constitute the only recorded instances of natural infection of vertebrate animals with equine encephalomyelitis virus, other than those that have been found in horses, mules, and man.

Equine encephalomyelitis virus is capable of infecting an extremely wide range of animals, including many species of birds, under artificial conditions.[36,37,38] Comparatively few of these animals, other than horses, have been found with natural infections. The fact remains that many widely disseminated warm-blooded vertebrates are susceptible, and sporadic occurrences of the disease in these species may occur at any time. Any and all of the species are to be considered as potential factors in the perpetuation of the virus to a greater or lesser extent. Only diligent search will serve to reveal sporadic cases of the disease in other than the usual hosts. Continued search should eventually disclose the virus reservoirs which must exist, according to present interpretations.

Distribution of Eastern and Western Types of Virus.— Mohler's report on infectious equine encephalomyelitis for the year 1941,[2] summarized the information relative to the distribution of eastern and western types of virus, as far as the facts had been determined up to that time. Up to 1943, the eastern virus had been identified in 13 states, and the western in 18 states.[9] During 1943, three strains of virus which had been isolated by Hammon and associates of the George Williams Hooper Foundation, from California, Nebraska, and Washington mosquitoes, were confirmed as being of the western type.[39] No additional new foci of infection with either type of virus were revealed, but rabies virus was proved to be the cause of what had been clinically diagnosed as encephalomyelitis in an Arizona horse.[39]

During the 1944 season, three encephalomyelitis viruses were isolated and typed in the Pathological Division from specimens received from Illinois, Louisiana, and Missouri.* The Illinois strain proved to be of the western type, in conformity with previously isolated strains from that state. As expected from the mortality figures received from Louisiana for the past several years,[2,10] the virus from that state proved to be of the eastern type. Contrary to expectations based on mortality figures, the Missouri strain was also found to be "eastern." Specimens from another equine case of encephalitis in Arizona yielded rabies virus.

With the addition of Louisiana and Missouri to the states from which eastern virus had previously been isolated, the list now totals 15. Western virus has been identified in 19 states, and both types have been found in three states. (See table 1.)

It will be noted that there are only three states in the country from which infectious equine encephalomyelitis has not been reported during the past fifteen years. In 14 states, the disease has been more or less prevalent for a number of years, but the diagnoses have been based on clinical or pathological findings or, in a few cases, on demonstration of an unidentified virus. The type or types of virus operating in these states has not been definitely determined, according to the Bureau's information.[2,10] The situation in numerous other states is indefinitely known, owing to the fact that virus isolations have been so few or were accomplished so long ago that they cannot be accepted as infallible indexes of the present status. The present distribution of the two types of virus may be as represented in figure 2, although more general sampling might reveal an entirely different picture. For example, the mortality rate for Missouri during 1944[10] definitely suggested western type infection, yet eastern virus was identified from the only case from which we succeeded in isolating virus. That the western virus predominates in Missouri still seems likely, but only repeated isolations from several parts of the state will serve to clarify the situation. The same may be said to be true wherever the disease occurs.

In human medicine, the viruses of St. Louis encephalitis, equine encephalomye-

*Equine brain specimens were submitted by A. K. Kuttler, W. A. McDonald, and E. C. Hughes, inspectors in charge of Bureau Stations in Illinois, Louisiana, and Missouri; examinations were made with the assistance of N. O. Olson, H. R. Seibold, and O. L. Osteen, of the Pathological Division.

litis (eastern and western types), poliomyelitis, rabies, and lymphocytic choriomeningitis, as well as other diseases, must be considered in the specific diagnosis of encephalitis.[24] In horses, specific virus-induced encephalomyelitis is by far the most prevalent form of infectious encephalitis. Surveys have shown, however, that considerable numbers of western horses carry neutralizing antibodies for St. Louis encephalitis virus in their blood,[40,26,27] though actual encephalitis in these animals, due to this virus, has not been identified except in cases of artificially induced infection.[41,42,43] It appears that inapparent infection is probably the usual manifestation of St. Louis encephalitis virus in horses. However, the possibility that the virus may cause frank encephalitis in some horses should not be overlooked. Rabies does, of course, sometimes attack horses, as well as other mammals, and the symptoms produced may resemble those of equine encephalomyelitis. From the tests that have been made, it seems probable that poliomyelitis does not affect horses.[44] Lymphocytic choriomeningitis or listerellosis has never been identified in horses, but there is a possibility of the occurrence of either disease in these animals.

Of the noninfectious forms of encephalitis, moldy corn poisoning[45] is probably the most prevalent disease entity. This is the first possibility to be considered in cases of encephalitis that occur during the late fall and winter months. Occurrence at other times of the year is not usual, nor is it impossible. Sporadic instances of encephalitis may arise from numerous other causes, which it may be necessary to consider, especially in unexpected or atypical cases. Laboratory examination should be resorted to frequently as a check on clinical diagnosis.

The possible intrusion of foreign viruses must always be considered. Fortunately, the countries adjoining the United States have had the same immunologic types of virus that are known to occur in this country, *viz.*, "western" and "eastern." The western virus has apparently prevailed in Canada, with the exception of sporadic, limited occurrences of the eastern virus in Ontario.[46,47] Eastern virus has been identified in Mexico,[48] and also in Panama.[49] In Argentina, the virus has been identified as "western."[50,51] In 1938, Beck and Wyckoff[52] identified a virus from Venezuelan cases which has been found to be immunologically distinct from the eastern and western encephalomyelitis viruses. Additional studies of the Venezuelan type of virus[53,54] have shown that it resembles "eastern" in pathogenicity and lethality, although it is a distinct entity. Venezuelan virus has also been identified in Trinidad[55,56] and Colombia[57] In Brazil, encephalomyelitis has been identified by means of neutralization tests to be due to eastern virus,[58,59] although here and in other coun-

TABLE I—Types of Equine Encephalomyelitis Virus Found in the United States, 1930-1944.

States from Which Western Type Virus Has Been Identified	States from Which Eastern Type Virus Has Been Identified	States from Which the Type of Virus Has not Been Identified	States from Which the Disease Has not Been Reported Since 1935
Alabama	Alabama	Arkansas	Pennsylvania
Arizona*	Connecticut	Indiana	Tennessee
California	Delaware	Maine	West Virginia
Colorado	Florida	Mississippi	
Idaho	Georgia	New Hampshire	
Illinois	Louisiana	New Mexico	
Iowa	Maryland	New York	
Kansas	Massachusetts	Ohio	
Kentucky	Michigan	Oklahoma	
Michigan	Missouri	Oregon	
Minnesota	New Jersey	Rhode Island	
Montana	North Carolina	Vermont	
Nebraska	South Carolina	Wisconsin	
Nevada	Texas	Wyoming	
North Dakota	Virginia		
South Dakota			
Texas			
Utah			
Washington			

tries in South America, rabies virus has also been implicated in some cases that might have been diagnosed clinically as specific encephalomyelitis. Equine encephalomyelitis has been reported from other South American countries, but the virus had not been typed, according to the information available at this writing.

In 1944, an epizoötic of equine encephalomyelitis occurred in Cuba. A strain of Cuban virus was submitted to the Pathological Division by Major Adriano Padron Torra, of the Cuban Army, and four strains were furnished by Professor Regelio Arenas, of the University of Havana. All five strains of virus were determined to be of the eastern type.* The techniques followed in these and other typing tests conducted by the writers were those which have been previously described.[60] In addition, however, a vaccine was made from one of the Cuban strains of virus. This protected equally well against the homologous strain, one of the other Cuban strains, and a representative eastern virus from the United States.

*Identified with the assistance of N. O. Olson, formerly of the Pathological Division.

Early in 1945, a sample of guinea pig brain, representing a supposed equine encephalomyelitis virus, was received from the Veterinary Laboratory of the Department of Agriculture in Ecuador. Eastern- and western-immune guinea pigs succumbed to intracerebral inoculation with the passaged Ecuador virus. Guinea pigs immunized with Venezuelan type vaccine received from Col. R. Randall, V.C., Army Medical Center, Washington, D. C., all withstood intracerebral inoculation of approximately 100 m.l.d. of the Ecuador virus which was concluded to be of the Venezuelan type. Owing to the fact that this type of virus is not known to occur in this country, and its escape from the laboratory would be very undesirable, further studies were not undertaken.

CONTROL OF EQUINE ENCEPHALOMYELITIS

For practical reasons, the prevention and control of equine encephalomyelitis largely have been resolved into vaccination. With

PROBABLE DISTRIBUTION OF WESTERN AND EASTERN TYPES OF EQUINE ENCEPHALOMYELITIS VIRUS UP TO 1945

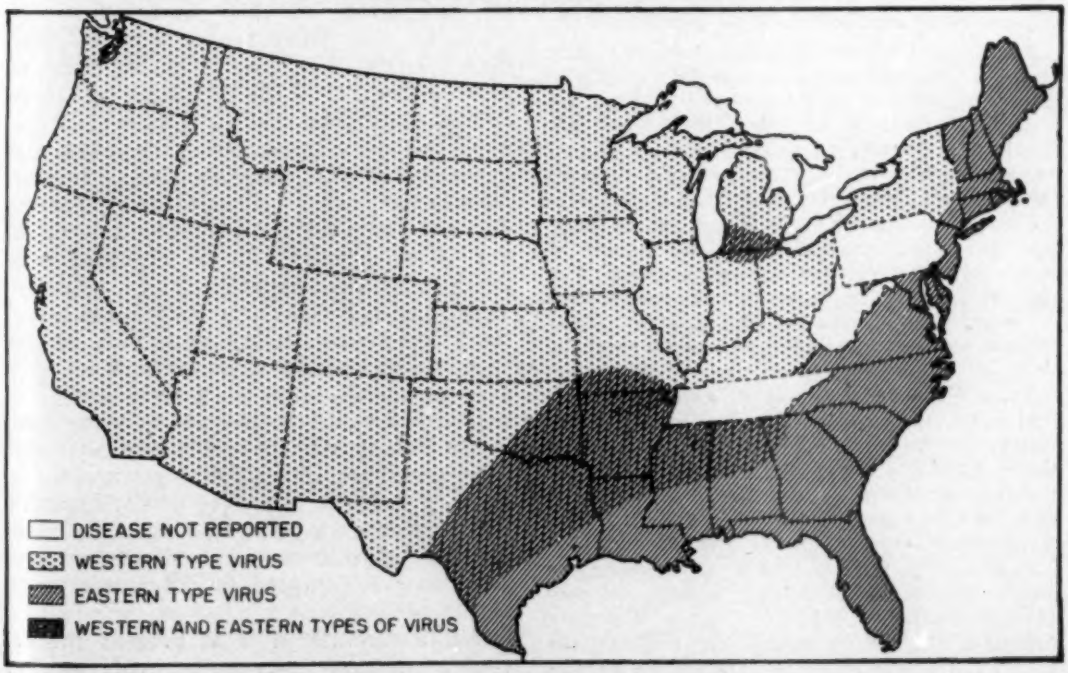

Fig. 2—The probable distribution of western and eastern types of equine encephalomyelitis virus in the United States up to 1945.

the passing of formolized brain tissue[61,62,63,64] and the development of formolized chicken-embryo-tissue vaccine,[65,66,67] vaccination has come to be widely practical. From reports received by the Bureau,[2,10] it is estimated that at least seven million two-dose treatments with the vaccine have been administered since 1938, when the improved vaccine became available. This includes many animals which have been vaccinated repeatedly one season after another. On the whole, the results have been very satisfactory.

However, if vaccination is to continue as the sole or main preventive weapon, it should be even more generally applied. Experience has shown the futility of attempting to predict what the incidence or distribution of the disease will be from one season to another, except in a general way. Consequently, valuable animals, at least, should be vaccinated annually in most sections of the country. Unfortunately, such a procedure leaves many worthless or insignificantly valued animals as potential perpetuators of the infection. Even if vaccination were general for a number of years, there is no assurance that the disease would be eliminated, considering the probable existence of other reservoirs of the virus. There are other factors to be considered:

First, all available evidence indicates that one dose of the vaccine is insufficient for the establishment and maintenance of a high degree of immunity. At least two doses are required, possibly excepting animals which have received two doses at the usual interval during the previous year.

Second, the vaccine, like most other biological products, is subject to deterioration if it is not kept under refrigeration up to the time of use. From all indications, the vaccine of today is of generally high potency, but it cannot be maintained at its highest potential value if it is mishandled.

Third, intradermic injection practically eliminates the untoward local reactions which sometimes result from subcutaneous administration. Moreover, intradermic injection of the vaccine has been found to be at least equal and possibly superior to subcutaneous injection from the standpoint of immunity produced.

Fourth, the vaccine should be administered before the disease becomes epizoötic, if best results are to be achieved. It is estimated, however, that at least 75 per cent of the product is applied after the disease has become prevalent in most localities.

Fifth, for obvious reasons, the vaccine should be administered by veterinarians. Unfortunately, this is not always the case.

Sixth, the choice of vaccine, i.e., western or eastern, is of prime importance. Although there has been some contradictory evidence,[69, 70] the consensus at present is that the two types of virus are immunologically distinct in the strict sense. Consequently, western vaccine is designed for immunization against western virus, and eastern vaccine is recommended for protection against eastern virus. It has been determined that some laboratory animals which have recently survived an abortive western infection are for a short time relatively resistant to heterologous virus.[70] This is, however, an entirely transitory state, which has been classed as an interference phenomenon such as has been shown to exist between other viruses even more distinct, one from the other, than are the immunologically distinct encephalomyelitis viruses. This phenomenon of temporary desensitization to virus of heterologous type is, so far as is known, distinct from true immunity. The nonspecific resistance is to be considered when one is typing or identifying virus of unknown character in laboratory animals,[69, 71] but there seems to be little likelihood of the principle having practical application in field vaccinations of horses.

The choice of a vaccine should be predicated, in so far as is possible, on definite knowledge of the type or types of virus currently operating in individual localities. If information of this character is not available, one must resort to what may have been learned from virus isolations in previous years. Lacking either of these points of information, one must rely for guidance on such features as the course and mortality of the existent disease in representative cases. It is evident that an accurate index of the current situation in any given locality can be obtained only through repeated isolations and type determinations each year. One isolation is better than none, but as many as possible should be made, beginning as early in the season as is practical.

In areas where both types of virus have been demonstrated, or where mortality and other features of the disease justify it, bivalent vaccine, composed of both eastern and western components, should be used. Or, the separate eastern and western vaccines may be injected at different sites at the same time.

While vaccination is at present the accepted primary instrument in prevention of encephalomyelitis, there are other possibilities for the future. For example, im-

portant reservoirs may be discovered which may be eliminated or circumscribed under practical conditions. Again, mosquito control may be so developed as to enable a complete change in the epizoötiological picture of disease. If the present weaknesses and deficiencies are recognized and appreciated, progress in prophylaxis and control seem sure to come.

SUMMARY

It is estimated that at least 1,000,000 horses and mules have developed infectious equine encephalomyelitis in the United States since 1930. Possibly as many as 300,000 of these animals have died.

Certain epizoötiological features of the disease are discussed. The evidence concerning vectors is reviewed.

Summaries of the present known and probable distribution of the western and eastern types of the virus are presented. Eastern virus was isolated in 1944 from cases occurring in Louisiana and Missouri, bringing the number of states so involved to 15. Western virus has been identified in 19 states, and both types have been found in three states.

All but three states have reported cases of the disease during the period 1935 through 1944. In 14 states, the disease has been diagnosed on one or more occasions during this interval, but the virus has not been specifically identified as to type.

Control, through the medium of vaccination and other possible means, is discussed. The desirability of laboratory diagnosis, including isolation and typing of virus wherever possible, is stressed.

References:

[1]Meyer, K. F., Haring, C. M., and Howitt, B. F.: The Etiology of Epizoötic Encephalomyelitis of Horses in the San Joaquin Valley, 1930. Science *74*, (1931): 227-228.

[2]Mohler, J. R.: Reports on Infectious Equine Encephalomyelitis in the United States. (Proc. Pub. Bureau Anim. Indust. issued annually, 1935 to 1942).

[3]Mohler, J. R.: Report of the Chief of the Bureau of Animal Industry, (1939), (1940).

[4]Ten Broeck, C., and Merrill, M. H.: A Serological Difference Between Eastern and Western Equine Encephalomyelitis Virus. Proc. Soc. Expti. Biol. Med., *31*, (1933): 217-220.

[5]Giltner, L. T., and Shahan, M. S.: The 1933 Outbreak of Infectious Equine Encephalomyelitis in the Eastern States. North Am. Vet., *14*, (1933): 25-27.

[6]Shahan, M. S., and Giltner, L. T. Equine Encephalomyelitis Studies. I. Cross-Immunity Tests Between Eastern and Western Types of Virus. J.A.V.M.A., *86*, (1935): 764-772.

[7]Randall, R., and Eichhorn, E.: Westward Spread of Eastern Equine Encephalomyelitis Virus. J.A.V.M.A., *98*, (1941): 448.

[8]Mohler, J. R.: Report of the Chief of the Bureau of Animal Industry, (1941): 56.

[9]Shahan, M. S., and Giltner, L. T.: Identity of Viruses from Cases of Equine Encephalomyelitis in 1942. J.A.V.M.A., *102*, (1943): 271-275.

[10]Miller, A. W.: Report on Infectious Equine Encephalomyelitis in the United States, (1943), (1944). (Proc. Pub. Bureau Anim. Indust.)

[11]U. S. Dept. of Commerce, 16th Agricultural Census of the U. S., (1940).

[12]U. S. Dept. of Agriculture, Bureau Agric. Econ., Livestock on Farms Jan. 1, 1945.

[13]Osteen, O. L.: Infectious Equine Encephalomyelitis: Mid-winter Case. J.A.V.M.A., *94*, (1939): 441-442.

[14]Schoening, H. W.: Epizootiology of Infectious Equine Encephalomyelitis in the United States, Vet. Bull., (Supp. to Army Med. Bull.), *34*, (1940): 13-19.

[15]Meyer, K. F.: Equine Enceyhalomyelitis. North Am. Vet., *14*, (1933): 30-48.

[16]Kelser, R. A.: Mosquitoes as Vectors of the Virus of Equine Encephalomyelitis. J.A.V.M.A., *82*, (1933): 767-771.

[17]Davis, W. A.: A Study of Birds and Mosquitoes as Hosts for the Virus of Eastern Equine Encephalomyelitis. Am. J. Hyg., *32*, (1940): 45-59.

[18]Hammon, W. McD., Reeves, W. C., Brookman, B., and Gjullin, C. M.: Mosquitoes and Encephalitis in the Yakima Valley, Washington. J. Infect. Dis. *70*, (1942): 278-283.

[19]Hammon, W. McD., Reeves, W. C.; Brookman, B., Izumi, E. M. Mosquitoes and Encephalitis in the Yakima Valley, Washington. J. Infect. Dis., *70*, (1942): 263-283.

[20]Hammon, W. McD., Reeves, W. C.: Laboratory Transmission of Western Equine Encephalomyelitis Virus by Mosquitoes of the Genera Culex and Culiseta. J. Exptl. Med., *78*, (1943): 425-434.

[21]Syverton, J. T., and Berry, G. P.: Hereditary Transmission of the Western Type of Equine Encephalomyelitis Virus in the Wood Tick, *Dermacentor andersoni* Stiles. J. Exptl. Med., *73*, (1941): 507-530

[22]Kansas Agric. Exper. Sta., Tenth Biennial Report of the Director, (July, 1938-July, 1940): 120.

[23]Kitselman, C. H., and Grundmann, A. W.: Equine Encephalomyelitis Virus Isolated from Naturally Infected *Triatoma sanguisuga* LeConte. Tech. Bull. No. 50, Kansas Agric. Exper. Sta., 1940.

[24]Dingle, John H.: The Encephalitides of Virus Etiology. New England J. Med., *225*, (1941): 1014-1022.

[25]Giltner, L. T., and Shahan, M. S.: The Present Status of Infectious Equine Encephalomyelitis in the United States. J.A.V.M.A., *88*, (1936): 363-374.

[26]Howitt, B. F., and VanHerick, W.: Relationship of the St. Louis and the Western Equine Encephalomyelitis Viruses to Fowl and Mammals in California. J. Infect. Dis., *71*, (1942): 179-191.

[27]Hammon, W. McD., Lundy, H. W., Gray, J. A., Evans, F. C., Bang, F., and Izumi, E.M.: A Large-Scale-Serum-Neutralization-Survey of Certain Vertebrates as Part of an Epidemiological Study of Encephalomyelitis of the Western Equine and St. Louis Types. J. Immunol., *44*, (1942): 75-86.

[28]Miller, A. W.: Report of the Chief of the Bureau of Animal Industry, (1943): 20.

[29]Giltner, L. T., and Shahan, M. S.: Transmission of Infectious Equine Encephalomyelitis in Mammals and Birds. Science, *78*, (1933): 63-64.

[30]Ten Broeck, C.: Birds as Possible Carriers of the Virus of Equine Encephalomyelitis. Archiv. Path., *25*, (1938): 759.

[31]Tyzzer, E. E., Sellards, A. W., and Bennett, B. L.: The Occurrence in Nature of "Equine Encephalomyelitis" in the Ring-Necked Pheasant. Science, *88*, (1941): 505-506.

[32]Fothergill, L. D., and Dingle, J. H.: A Fatal

Disease of Pigeons Caused by the Virus of the Eastern Variety of Equine Encephalomyelitis. Science, *88*, (1941): 549-550.

[34]Van Roekel, H., and Clarke, M. K.: Equine Encephalomyelitis Virus (Eastern Type) Isolated from Ring-Necked Pheasant. J.A.V.M.A., *94*, (1939): 466-468.

[35]Beaudette, F. R.: Equine Encephalomyelitis in Avian Hosts. Proc. U. S. Live Stock Sanitary A., (1939): 185-203.

[35a]Cox, H. R., Jellison, W. L., and Hughes L. E.: Isolation of Western Equine Encephalomyelitis Virus from a Naturally Infected Prairie Chicken. U. S. Pub. Health Rep. 1905-1906, *56*, (1941).

[35b]McNutt, S. H., and Packer, A.: Isolation of Western Equine Encephalomyelitis and Hog-Cholera Viruses from Supposedly Hog-Cholera Immune Swine. Am. Vet. Med., *38*, (1943): 22-25.

[36]Shahan, M. S., Giltner, L. T., and Schoening, H. W.: A Review of the 1938 Outbreak of Infectious Equine Encephalomyelitis in the United States. Proc. U. S. Livestock Sanitary A., (1938): 145-156.

[37]Giltner, L. T., Shahan, M. S. Equine Encephalomyelitis. Keeping Livestock Healthy, U. S. Dept. Agric. Yearbook, (1942): 375-391.

[38]Giltner, L. T.: Equine Encephalomyelitis in Birds. Diseases of Poultry, Biester and deVries, (1943): 475-479.

[39]Miller, A. W.: Report of the Chief of the Bureau of Animal Industry, (1944): 21-22.

[40]Phillip, C. B.; Cox H. R., and Fountain, J. H.: Protective Antibodies Against St. Louis Encephalitis Virus in the Serum of Horses and Man. Pub. Health Rep., *56*, (1941): 1388-1391.

[41]Cox, H. R., Phillip, C. B., and Kilpatrick, J. W.: Susceptibility of Horses to St. Louis Encephalitis Virus. Pub. Health Rep., *56*, (1941): 1391-1392.

[42]Hammon, W. McD., Carle, B. N., and Izumi, E. M. Infection of Horses with St. Louis Encephalitis Virus Experimental and Natural. Proc. Soc. Exptl. Biol. Med., *49*, (1942): 335-340.

[43]Shahan, M. S., Mott, L. O., Knudson, R. L., Osteen, O. L., and Giltner, L. T.: The Relationship of St. Louis Encephalitis Virus to the Equine Encephalitis Problem. Vet. Med., *37*, (1942): 339-345.

[44]McKinnon, N. H.: The Non-Susceptibility of Horses to Poliomyelitis Infection. Trans. Royal Soc. Canada, Sec. V, (1933): 187-191.

[45]Schwarte, L. H., Biester, H. E., and Murray, C.: A Disease of Horses Caused by Feeding Moldy Corn. J.A.V.M.A., *90*, (1937): 76-85.

[46]Schofield, F. W.: The Isolation and Identification of the Virus of Equine Encephalomyelitis. Canad. Pub. Health J., *31*, (1940): 31-32.

[47]Schoening, H. W. Giltner, L. T., and Shahan, M. S.: Infectious Equine Encephalomyelitis in 1939. Proc. U. S. Livestock Sanitary, A., (1939): 145-150.

[48]Tellez, Giron A.: La Presencia del Virus Typo este de la Encefalomielitis Equina en la Epizootica Occurida en el Estado de Tamaulipas, Mex., durante 1941. Rev. Inst. Pecuario, *1*, (1941): 36-44.

[49]Keiser, R. A.: Equine Encephalomyelitis in Panama. Vet. Bull. (Supp. to Army M. Bull.) 31, (1937): 19-21.

[50]Howitt, B. F.: An Immunological Study in Laboratory Animals of Thirteen Different Strains of Equine Encephalomyelitis. J. Immunol., *29*, (1935): 319-341.

[51]Rosenbusch, F.: Equine Encephalomyelitis in the Argentine and Its Experimental Aspects. Proc. 6th Pacific Sci. Cong., Pacific Sci. A., (1939): 209-214.

[52]Beck, C. E., and Wyckoff, R. W. G.: Venezuelan Equine Encephalomyelitis. Science, *88*, (1938): 530.

[53]Kubes, V., and Rios, F. A. Datos Preliminares sobre el Agente Etiologico de la Encefalomielitis Infecciosa de los Equinos en Venezuela. Rev. sud—Amer. Endocrinol Immunol. Quimoterapia *12*, (1939): 575-577.

[54]Kubes, V., Diamante, A.: Estudios de Immunidad Cruzada entre el Virus de la Encefalomielitis Equina de Venezuela y los Virus Encefalomieliticos Norte Americanos este y oeste y el Argentino, Bol. Inst. de Invest. Vet. (Caracas), *1*, (1942): 49-79.

[55]Kubes, V.: Venezuelan-Type Equine Encephalomyelitis Virus in Trinidad. Science, *99*, (1944): 41-42.

[56]Randall, R., and Mills, J. W.: Fatal Encephalitis in Man Due to the Venezuelan Type of Equine Encephalomyelitis in Trinidad. Science, *99*, (1944): 225-226.

[57]Kubes, V.: Immunological Relations Between the Virus of Equine Encephalomyelitis of Colombia and of Venezuela. Puerto Rico J. Pub. Health and Trop. Med., *18*, (1943): 402-411.

[58]Lennette, E. H., and Fox, J. P.: Anticorpos Neutralizantes para a Amostra leste do Virus de Encefalomielite Equina em Equidos no Brasil. Mem. Inst. Oswaldo Cruz, *38*, (1943): 85-92.

[59]Cunha, R.: Verificacao de Anticorps paro o Virus "este" da Encefalomielite Equina em soro de Cavales no Nordeste Brasileiro. Rev. Brasil de Biol., *3*, (1943): 425-430.

[60]Shahan, M. S., Giltner, L. T., and Osteen, O. L.: The Isolation and Typing of Equine Encephalomyelitis Virus. Cornell Vet., *30*, (1940): 151-160.

[61]Shahan, M. S., and Giltner, L. T.: Some Aspects of Infection and Immunity in Equine Encephalomyelitis. J.A.V.M.A., *84*, (1934): 928-934.

[62]Shahan, M. S., Giltner, L. T.: Experimental Studies on Equine Encephalomyelitis Formalized Brain Tissue Vaccine. North Am. Vet., *16*, (1935): 18-26.

[63]Cox, H. R., and Olitsky, P. K.: Active Immunization of Guinea Pigs with the Virus of Equine Encephalomyelitis. J. Expti. Med., *63*, (1936): 745-767.

[64]Schoening, H. W., Giltner, L. T., and Shahan, M. S.: Equine Encephalomyelitis with Special Reference to the 1937 Outbreak. The Iowa Vet., *9*, (1938): 5-17.

[65]Beard, J. W., Finkelstein, H., Sealy, W. C., and Wyckoff, R. W. G.: Immunization Against Equine Encephalomyelitis with Chick Embryo Vaccines. Science, *87*, (1938): 490.

[66]Eichhorn, A., and Wyckoff, R. W. G.: Immunological Studies on Equine Encephalomyelitis. J. A. V. M. A., *93* (1938): 285-290.

[67]Schoening, H. W., Shahan, M. S., Giltner, L. T., and Osteen, O. L.: The Longevity of Encephalomyelitis Immunity Induced in Horses by Vaccination. J. A. V. M. A., *102*, (1943): 18-21.

[68]Meyer, K. F., Wood, F., Haring, C. M., and Howitt, B.: Susceptibility of Non-Immune, Hyperimmunized Horses and Goats to Eastern, Western, and Argentine Virus of Equine Encephalomyelitis. Proc. Soc. Exptl. Biol. Med., *32*, (1935): 56-58.

[69]Records, E., and Vawter, L.: Equine Encephalomyelitis Cross-Immunity in Horses Between Western and Eastern Strains of Virus, Supplemental Report. J. A. V. M. A., *86*, (1935): 773-777.

[70]Schlesinger, R. W., Olitsky, P. K., and Morgan, I. M.: Induced Resistance of the Central Nervous System to Experimental Infection with Equine Encephalomyelitis Virus. III. Abortive Infection with Western Virus and Subsequent Interference with the Action of Heterologous Viruses. J. Infect. Dis. *80*, (1944): 197-211.

[71]Schlesinger, R. W., Olitsky, P. K., and Morgan, I. M.: Observations on Acquired Cellular Resistance to Equine Encephalomyelitis Virus. Proc. Soc. Exptl. Biol. Med., *54*, (1943): 272-273.

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Advances in Bacteriology and Immunology in the United States

ALBERTO ASCOLI, M.D.
New Brunswick, New Jersey

MY TASK is to familiarize you with what four years of teaching bacteriology and immunology in the United States has taught me, which, I believe, is significant enough to report briefly.

American terminology, which I have had to adopt, is very different from that used in Europe. Since Bergey's Manual, prepared by the Association of American Bacteriologists, has given new names to many organisms, European bacteriologists must acquaint themselves with them. The bacillus of typhoid fever and the coli organisms, for example, are called Eberthella and Escherichia; the paratyphoid bacilli, Salmonella; Friedländer bacillus, Klebsiella; Loeffler bacillus, Corynebacterium; the tetanus bacillus, Clostridium; the dysentery organism, Shigella; *Bacillus pyocyaneus, Pseudomonas aëruginosa;* and so on.

As one overcomes the obstacle built up by this terminology, the panorama of accomplishments by American bacteriologists unveils. The reward for the effort to learn this terminology is a knowledge of these accomplishments. They are intimately connected with the advances made in the studies of physics and chemistry. Thus, the electronmicroscope has greatly improved morphological observations by making it possible to study the structure of microbes minutely. Filterable viruses are made clearly distinguishable as small bodies in contrast to the gigantic size of bacteria under the same magnification. The attack of bacteria by the bacteriophage can be clearly seen under electronmicroscopy. The high speed of Svedberg's ultracentrifuge stratifies the viruses; for example, tobacco mosaic virus within a certain zone. By means of successive procedures, this layer can be isolated in the form of crystals, capable of producing the disease when put on tobacco leaves, a result that has caused speculation as to the living nature of filterable viruses.

In the field of morphology, studies on bacterial dissociation, based on the different aspects of colonies on culture mediums, have shown that colonies are of two kinds: smooth and rough, designated as S and R. This dissociation has upset the concept that every bacterial species is a fixed and stable entity. Transfers made from these colonies, or from intermediate types, present biological characters so completely different as to suggest the presence of two distinct species. But, because these variants can be reconverted to their original form, all doubt that they belong to the same species is removed.

NEW AMERICAN RESEARCHES

American research has written new pages into the history of bacteriology, just as other significant pages on the chemical constituents of microörganisms are being written. The starting point came from soil bacteriology. The energies at work on the decomposition of organic matter have been skillfully mobilized. The flora, built up by bacteria and fungi, has been accurately determined, and has disclosed remarkable enzymes capable, for example, of attacking the capsule of Pneumococcus and of liberating the polysaccharides, which form the backbone of research work on a whole new group of antigens—the haptens. From *Bacillus brevis,* isolated from the soil through the routine methods of soil bacteriologists, crystalline substances have been extracted with such simple solvents as alcohol and acetone. Of these, tyrothricin and tyrocidin have been used successfully in treating bovine mastitis; and gramicidin, the mother substance, has cast light on the intimate mechanism of the oldest of bacterial staining processes, Gram's method. The antibiotic action developed by molds has been reproduced *in vitro* through the isolation of substances endowed with extraordinary antimicrobial properties. One of these—

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[34a]Beaudette, F. R.: Equine Encephalomyelitis in Avian Hosts. Proc. U. S. Live Stock Sanitary A., (1939): 185-203.

[35]Cox, H. R., Jellison, W. L., and Hughes L. E.: Isolation of Western Equine Encephalomyelitis Virus from a Naturally Infected Prairie Chicken. U. S. Pub. Health Rep. 1905-1906, *56*, (1941).

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[37]Giltner, L. T., Shahan, M. S. Equine Encephalomyelitis. Keeping Livestock Healthy, U. S. Dept. Agric. Yearbook, (1942): 375-391.

[38]Giltner, L. T.: Equine Encephalomyelitis in Birds. Diseases of Poultry, Biester and deVries, (1943): 475-479.

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[43]Shahan, M. S., Mott, L. O., Knudson, R. L., Osteen, O. L., and Giltner, L. T.: The Relationship of St. Louis Encephalitis Virus to the Equine Encephalitis Problem. Vet. Med., *37*, (1942): 339-345.

[44]McKinnon, N. H.: The Non-Susceptibility of Horses to Poliomyelitis Infection. Trans. Royal Soc. Canada, Sec. V, (1933): 187-191.

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[48]Tellez, Giron A.: La Presencia del Virus Typo este de la Encefalomielitis Equina en la Epizootica Occurida en el Estado de Tamaulipas, Mex., durante 1941. Rev. Inst. Pecuario, *1*, (1941): 36-44.

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[52]Beck, C. E., and Wyckoff, R. W. G.: Venezuelan Equine Encephalomyelitis. Science, *88*, (1938): 530.

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[54]Kubes, V., Diamante, A.: Estudios de Immunidad Cruzada entre el Virus de la Encefalomielitis Equina de Venezuela y los Virus Encefalomieliticos. Norte Americanos este y oeste y el Argentino, Bol. Inst. de Invest. Vet. (Caracas), *1*, (1942): 49-79.

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[56]Randall, R., and Mills, J. W.: Fatal Encephalitis in Man Due to the Venezuelan Type of Equine Encephalomyelitis in Trinidad. Science, *99*, (1944): 225-226.

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penicillin—though actually discovered by an English research worker, was started on its triumphant march by studies and practical applications carried out in the United States.

In the field of the filterable viruses, as they are called here, the method of culturing them in the chorioallantois of the developing chicken embryo has been successfully used in the cultivation of rabies and encephalomyelitis viruses, and has come into current use in preparing vaccines for encephalomyelitis and yellow fever. The problem of vaccination against influenza is not yet solved, since different types of viruses have been isolated in different epidemics.

Since the vaccines used in this war are similar to those of the last one, that detail may be dismissed. However, the vaccine against typhoid fever is being tested for its protective power in mice. Thanks to the advance made, the American soldier is protected against epidemics (*e.g.* yellow fever and typhus) prevalent in their combat zones. As for typhus, a powerful insecticide—DDT—is being employed to kill lice, in preference to vaccination.

SERODIAGNOSIS OF MALARIA

Malaria is the only black spot in a picture that, in every other respect, is encouraging. Synthetic quinine is bound to replace the temporary loss of natural quinine from the Dutch East Indies which supply 90 per cent of that drug. Although it is true that no way of vaccinating against malaria has yet been found, advances have been made in its serodiagnosis which, I believe, now successfully competes with the microscopic examination, even with the improved thick film examination. Due to the large numbers of plasmodia found in the blood of *Macacus rhesus*, infected with *Plasmodium knowlesi*, we can reach, through the complement fixation tests, a positive serodiagnosis of malaria, using this blood as antigen and the serum of the malaria-stricken patient as antibody, even in cases where the microscopic examination fails to reveal the malaria organism. The agglutinating activity of malarial blood on the sporozoites found in the salivary glands of the infected mosquito offers a sensitive and specific serodiagnostic method that is a formidable rival of the microscopic examination, where there is a continuous supply of infected mosquitoes. These serodiagnostic procedures will undoubtedly be mobilized and used routinely when the soldiers who contracted malaria in infected zones return home. These soldiers now form, or will form, a great reservoir for the spread of malaria.

THE RH FACTOR

Much publicity has been given to a recent observation of Landsteiner, winner of the Nobel prize, for his discovery of human blood groups. By immunizing rabbits with the blood of anthropoid apes—*M. rhesus*—years ago, he obtained an antiserum that agglutinated the red blood cells of a few human beings. The antigen present in the blood of this primate which produces the formation of the agglutinating antibody has been named Rh for the initial letters of the word "(rh)esus." When the blood of an Rh-positive person—a person containing the Rh factor—is injected into an Rh-negative person—a person not containing the Rh factor—the blood of the latter produces an antibody similar to the one formed in the rabbit inoculated with the blood of *M.rhesus*. When such a person is again given the blood of an Rh-positive human being, the antibodies built up by the first injection act against the transfused red blood cells and produce a shock that can be lethal. Thus, an unexpected cause of transfusion accidents has been discovered. Moreover, a key to the mechanism of the disease erythroblastosis foetalis has been discovered, chiefly from the research work of Dr. Philip Levine. Briefly told, what happens is as follows: The gene of the Rh-positive father passes his Rh factor to the fetus, and the Rh-negative mother, of course, produces the antibody which reaches the fetus through the placenta. The fetus is thus killed by the agglutinating and hemolytic actions of the maternal antibody. In other words, the latest study in the field of blood grouping, shows that parents act as infanticides, unaware.

The analysis of the antigenic structure of the Salmonella (paratyphoid) group has been accomplished in laboratories designated solely for this work, and has led to practical field applications. Bacillary white diarrhea of chicks, caused by *Salmonella pullorum*, is being controlled through the elimination of chickens reacting positively to agglutination test with

S. pullorum antigen.. The specificity of this agglutination reaction is due to the characteristic complex of somatic and flagellar antigens. In human Salmonella infections, the "Analytical Widal," using somatic and flagellar antigen preparations, has also been found highly reliable.

The study of growth factors has given rise to therapeutic attempts at combating bacteria by starving them. The carbon dioxide requirement for culturing *Brucella bovis* becomes clear in the light of investigations showing that it is one of the building stones in the synthesis of microbial constituents.

Chemists, physicists, physicians, and veterinarians are pooling their endeavors to develop and test new antigenic preparations. The victory against bovine tuberculosis has stimulated interest in similar control of paratuberculosis through the use of tuberculin-like "Johnin". Irradiation, sound waves, and suffocation have been used to attenuate or kill bacteria and viruses, while yet preserving the antigenic integrity of the organisms. Time alone will tell whether the potent vaccines prepared by ultra-violet irradiation of rabies, St. Louis encephalitis, and poliomyelitis viruses are able to induce a degree of immunity to natural exposure to these dreadful diseases, which is equal to that developed to experimental exposure in the mouse test.

As an excellent example of collaboration, I submit to your attention the results obtained by physicists, physical chemists, and chemists, working with clinicians, immunologists, and pathologists in a combined effort to make the best use of pooled human plasma from blood collected by the American Red Cross. Blood fractionation yielded a number of products which have proved of value in medicine and surgery. The osmotic effect of the albumin fraction helps to control shock and hypoproteinemic edema; fibrin films prepared from fibrinogen are used as dural substitutes in brain surgery; the hemostatic effects of certain fibrin forms are useful in controlling loss of blood; the gamma globulin fraction supplies an improved agent for the prevention of measles because it provides the normal antibodies in a solution that has been concentrated twenty-five fold. These products were welcomed by the medical corpsmen of the United Nations.

Object to Sanitary Meat Inspection

The House Republican Food Study Committee is protesting against the USDA slaughtering restrictions. Congress had exempted from slaughtering quotas some 15,000 "class 2" slaughterhouses, which are not federally inspected, if they are certified as sanitary by the Secretary of Agriculture. The protest is based upon the claim that "no slaughterer in the world can comply with the regulations to the satisfaction of a government agent who does not want to be convinced" and adds that only 449 of the small slaughterers have applied for the exemption, and only 138 of the applications were approved. The chairman of the Committee asserted through the agricultural press that there is more beef "on the hoof" than ever before but that regulations were preventing packers from working at full capacity.

The "Pseudos" of Medical Practice

Under the headline "Pseudodoxia Pediatrica" taken from the *New England Journal of Medicine*, the *Journal of the American Medical Association* writes a critical editorial calling attention to doubtful practices among pediatricians, pointing out the harm of indiscriminate resort to tonsillectomy in children, and the poor showing that lying-in hospitals are making in reducing maternal mortality. The Frontier Nursing Service of Kentucky reports a maternal death rate of 0.75 per thousand births in the first 4,000 deliveries recorded. For the white population of the United States during the same time, the maternal mortality was 5.6 per thousand. Reasons are given for the difference. Infections common in the hospitals are rare in the homes and the custom of separating mother and child is thought to be "unnatural and unphysiologic." Besides, feeding fallacies rationalized without scientific check are called "a fruitful field for trouble." Except as citizens, the vital subject of human maternal mortality is no concern of ours; "pseudodoxiae," however, do concern us immensely, and these can only be reformed and curbed by the sound meditation within the operations of good schools, good organizations, and the good intentions these cultivate.

SURGERY & OBSTETRICS
AND PROBLEMS OF BREEDING

Rupture of the Diaphragm

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RUPTURE of the diaphragm is a common accident in the dog and cat. Generally treated as inoperable, experience has shown that when properly approached such cases can be surgically repaired with a high degree of success. It is our purpose to present this subject as it is encountered and treated in our clinic. This paper represents the cumulative efforts of all of our staff and the authors make no claim to originality in any phase of this work.

REVIEW OF LITERATURE

Diaphragmatic hernia is infrequently described in English literature. Necheles and Olson,[1] in describing a case seen in a pound dog, cite five references in European journals. Hobday's "Surgical Diseases of the Dog" and Brumley's "Diseases of the Small Domestic Animals" discuss the subject briefly, indicating that treatment is impossible.

In 1943, Rudolph Schneider[2] of our staff published the first known report of a successful surgical repair of a diaphragmatic hernia in the dog.

Schnelle,[3] in several excellent papers, has dealt with the clinical history and more particularly with the radiographic diagnosis of rupture of the diaphragm.

It remained for Dr. Alan Secord,[4] in 1942, to undertake a serious study of the topic. It is the desire of the authors to reaffirm the feasibility of this operation and to present what is perhaps a simpler reparative procedure. Veterinarians and others interested in this injury are urged to consult Secord's splendid work.

Etiology.—Rupture of the diaphragm is, in our experience, practically always a direct result of trauma. We have not recognized congenital diaphragmatic hernia, as yet, in our clinic and, hence, have made no effort to include this type of hernia at this time. The most frequent trauma in dogs is the automobile accident.

From Angell Memorial Animal Hospital, Boston, Mass.

In attempting to picture the chain of events leading to the production of this injury, the following seems most logical. There must occur a sudden powerful blow against the tensed abdominal wall, resulting in abrupt increase in pressure on the abdominal side of the diaphragm. We presume that the glottis is open and that there is no equalization of pressure on the thoracic side of the diaphragm. Rupture of the diaphragm then occurs with displacement of one or more of the abdominal organs into the thoracic cavity.

It is unlikely that a blow on the chest wall could produce such an injury, since the force of the blow must then be applied to the anterior convex surface forcing it backward. Considerable posterior displacement of the diaphragm without tearing should be possible as backward motion of this structure relaxes and relieves tension on it.

Anatomical Alterations.—Upon exposure of a ruptured diaphragm, we may find an injury of any degree of severity. The tear may occur along the costal margin, so that little is left of the diaphragm's attachment at this point, or it may be more centrally located. This central location is the more common, unfortunately, since tears in this location are more difficult to expose and repair. In some cases, the wound is irregular and Y shaped with one angle of the wound usually in the vicinity of the foramen through which the vena cava passes.

When the injury is not recent, the wound edge may be thoroughly healed, rolled back on the peritoneal side, and adhered to itself. Flimsy adhesions may also exist between the liver, omentum, or other organs and the diaphragm.

Invariably, we find abdominal organs in the chest. We always find one or more lobes

of the liver in the thorax, and, frequently, the omentum, intestines, stomach and spleen, probably in that order.

In recent injuries, the lung on the affected side is collapsed and the liver shows passive congestion. There is usually considerable fluid of a serosanguineous nature in the chest and abdomen. In one of our cases, by alternately elevating the front and hind quarters, it was possible to hear clearly this fluid "gurgling" from one cavity to the other through the diaphragmatic defect.

In older cases, collapse of the lung may be followed by hyperemia and some degree of hepatization. The passive hyperemia existing in the liver may progress to the point where this organ shows changes in structure and contour, possibly of a permanent nature.

Strangulation of any of these organs is always a possibility and, while usually occurring during the first minutes following the accident, may arise at any time subsequently.

Symptoms.—The one striking symptom usually present is the typical abdominal type of breathing most noticeable on expiration. Following the normal contraction of the chest wall, as occurs in expiration, there comes a contraction of the abdominal muscles which may be of a gradual or spasmodic nature. Such a movement is obviously intended to force the last possible bit of air from the already nearly collapsed lung and thus to increase to the utmost the greatly diminished tidal flow.

As would be expected, these changes in respiration are exaggerated when the animal is exercised and, in a few instances, when the hind quarters are elevated.

Auscultation and percussion of the chest will reveal to an experienced observer, that dullness and diminished respiratory murmur are present. If, in addition, peristaltic sounds are detected in the thorax, the diagnosis is confirmed.

Symptoms referable to displaced portions of the alimentary tract may include vomiting, retching in the case of a displaced and dilated stomach, colic, loss of appetite, etc. Such symptoms may be acute and a crisis may be impending. In other patients, a more chronic history may be given with infrequent and milder symptoms of the sort described above.

Diagnosis.—Ordinarily, diagnosis is not difficult, and yet there does exist a fairly

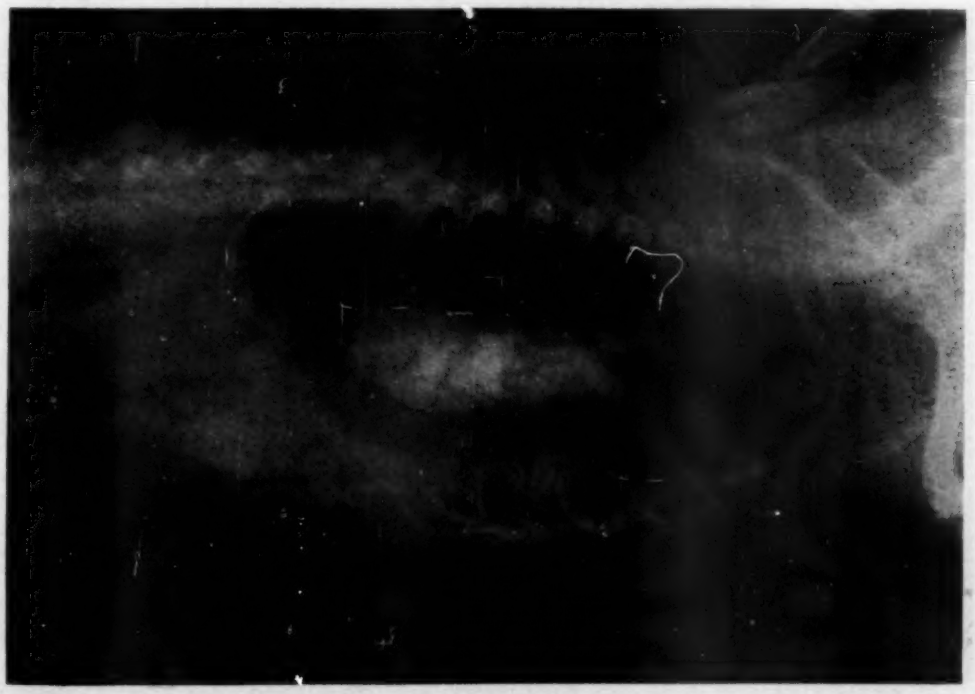


Fig. 1—Radiograph showing stomach outlined with barium and distended with gas in thorax.

large percentage of cases which may be confusing and which may require time and study before a diagnosis can be established.

Acute dyspnea, occurring suddenly in a previously well animal with a normal temperature, should lead to the consideration of rupture of the diaphragm as a possibility. If, in addition, a history of severe trauma and symptoms of shock are present, the suspicion is further strengthened. Evidence of displacement of abdominal organs will confirm the diagnosis.

Diagnosis may not be easy in older injuries where the initial symptoms were mild. One must realize that displacement of viscera may occur with rupture or may follow at a later date.

It must be emphasized that symptoms may pass unnoticed for weeks. Many patients come to us with no knowledge on the part of the owner that any accident has occurred. Dukes[5] and Markowitz[6] both have indicated that the diaphragm is not of major importance in a dog's respiration and that life without it is not only quite possible but frequently unattended by any marked symptoms.

In all cases, the x-ray is a most valuable aid to diagnosis. It is advisable to administer a barium meal and then to take a lateral plate over the anterior abdomen and thorax. Usually the shadow of the displaced liver will be seen as well as the barium outlined stomach (fig. 1) and intestines. When the stomach is not displaced, another plate taken in forty-five minutes to an hour may show a displaced intestine (fig. 2).

Differential Diagnosis.—Rupture of the diaphragm must be differentiated from hemothorax, pneumothorax, empyema, asthma, pneumonia, pleurisy, acute gastric dilatation, the labored breathing from internal hemorrhage, or any condition in which acute respiratory distress is present. Absence of fever, normal white count, and history will usually eliminate any infectious condition.

Thoracentesis may be employed to detect empyema which has misled us on one or two occasions. On the other hand, thoracic puncture might lead to the discovery of air which could be either in the pleural cavity, pneumothorax, or in a displaced stomach. Similarly, blood aspirated from a chest might, or might not, be associated with rupture of the diaphragm. In all cases, a radiograph should be taken if possible.

Fig. 2—Radiograph depicting several barium filled loops of small intestine herniated into thorax.

To preclude any possibility of error, we advise a delay of seven to ten days following injury before operating. We note with interest that Homans[7], in discussing this subject in man, has advised a similar delay permitting the elimination of shock and a more complete determination of the nature and extent of the injury. This may permit the spontaneous recovery of a patient from another condition such as hemothorax, mistakenly diagnosed as ruptured diaphragm. Unless an emergency exists, it is better to delay the operation.

Treatment.—As the treatment can be surgical repair only, certain technical factors must be considered. Respiration requires that during inspiration there must be a negative intrathoracic pressure. The pressure inside the pleural cavity must be less than the atmospheric pressure, in order that the inspired air may overcome the natural elasticity of the lung tissue and enter the lung. Increasing the capacity of the thorax by expanding the chest walls and contracting the diaphragm accomplishes this. Expiration is usually a passive motion. The diaphragm relaxes; the chest walls contract, and the capacity of the thoracic cavity is diminished, with the result that the intrathoracic pressure rises and equals, or nearly equals, the atmospheric pressure. The elasticity of the lungs then exerts itself, expelling the air contained within.

It is obvious then that a tear in the diaphragm establishing communication between the thoracic and abdominal cavities will largely nullify the action of the diaphragm in the act of respiration. If, in addition to the diaphragmatic defect, abdominal organs displaced into the chest impede or prevent expansion of the lung, then respiration becomes more difficult. To carry this sequence to its conclusion, a laparotomy incision in such patients provides direct communication between the atmosphere and space around the lungs. Pressure then becomes the same inside and outside the lungs; they collapse on account of their own elasticity, and the patient no longer is able to do its own breathing. It is necessary, therefore, to provide positive pressure intratracheally in addition to complete anesthesia.

Since the pleural cavity is open and exposed to the air and will be entered by the instruments and hands, we must recall that the protection of peritoneum is absent and that the chest is vulnerable to infection. It is, therefore, mandatory that the most rigid precautions be observed in opening the pleural cavity. Gloves, gowns, masks, caps, and an absence of dust in the operating room are practical necessities.

As such surgery is done in a very narrow space, it is necessary to have adequate instruments to aid one's dexterity.

Four persons are necessary to conduct such an operation, namely, the surgeon, his assistant, an anesthetist to conduct artificial respiration, and a fourth person to handle goods, focus lights, and run errands. Only the first two need maintain sterility, although the latter two must take care not to violate it.

Preoperative Preparations.—As previously indicated, we prefer to defer the operation for seven to ten days following the occurrence of the injury. In many patients, in addition to the diaphragmatic injury, there is bruising and superficial laceration of the parenchymatous organs, particularly the liver. Such injuries are thus given an opportunity to heal. We are then permitted to use, with safety, the force that is frequently necessary to replace misplaced organs. The effects of initial shock and hemorrhage, also, largely have been overcome.

There will be a patient, occasionally, in which death is obviously impending unless immediate help can be given. These patients are usually suffering from a completely herniated stomach, with a kink or torsion of the esophagus. Such animals can apparently swallow air, and perhaps some gastric fermentation is going on. Being unable to eructate or vomit, the stomach dilates rapidly and crowds the lungs. In such patients, immediate aspiration of the air from the stomach by thoracic puncture is necessary. The administration of oxygen may carry the patient through such a crisis. It is a waste of time to administer stimulants until an adequate oxygen intake can be provided. Surgical intervention may not now be postponed with safety. These animals suffer a high mortality and many succumb before reaching the surgery.

The patients are fasted for twelve to eighteen hours and are given 1/100 gr. of atropine prior to receiving the anesthetic. This insures a dry mouth, pharynx, and trachea and improves the pulmonary ventilation.

Each one of the operating crew should understand what he has to do and the equipment to keep at hand. When the operation starts, there will be no time to look for misplaced instruments or paraphernalia. A "dress rehearsal" would be in order.

Instruments should include two ribbon retractors, a 9-inch needle holder (Mayo),

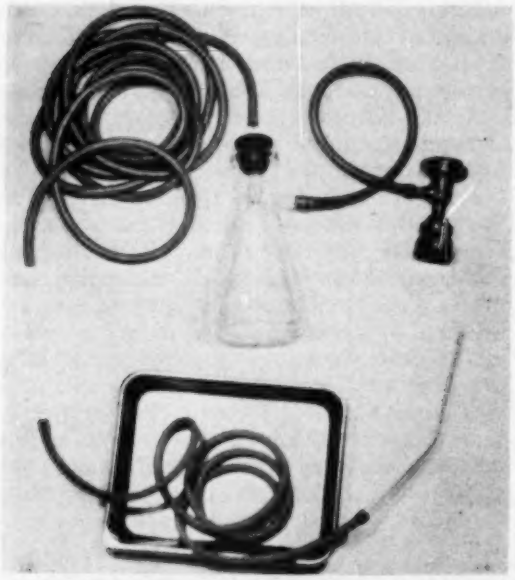


Fig. 3—Suction apparatus. Glass tip and tubing in tray is the sterile portion.

a 9-inch rat-tooth forceps, and scissors. Allis forceps, hemostats, scalpels, towel clamps, towels, drapes, and large and small sponges complete the list. Sutures should include 0 and 00 medium chromic gut and No. 2 silk or other nonabsorbable sutures for the skin.

A suction apparatus is helpful, although not essential, and can be provided readily by connecting a length of pressure tubing with a siphon or water pump, attached to the cold water faucet (fig. 3).

As part of the surgical kit, an 8- or 9-inch piece of glass tubing on the end of a 3-foot length of rubber tubing should be sterilized. This is the terminal portion of the suction apparatus and is to be connected with the remainder of the unit.

Artificial Respiration. — Many devices have been described to provide artificial respiration. We have seen some of them and still prefer our own, which has the advantages of simplicity, efficiency, and economy. Briefly, it consists of a rubber colon tube of a size suitable for the patient (No. 16 French for cats to No. 36 French for medium to large dogs). This is passed into the trachea and is tied to the jaw leaving the tongue free for the detection of cyanosis. This tube is, in turn, connected with a good hand operated tire pump by means of a sawed off valve stem with the valve removed. At the pump end of the catheter, an elliptical opening is made in the tube about 1/2 inch long and extending nearly half way around the tube (fig. 4).

With the tube in the trachea, the anesthetist places his left thumb over the

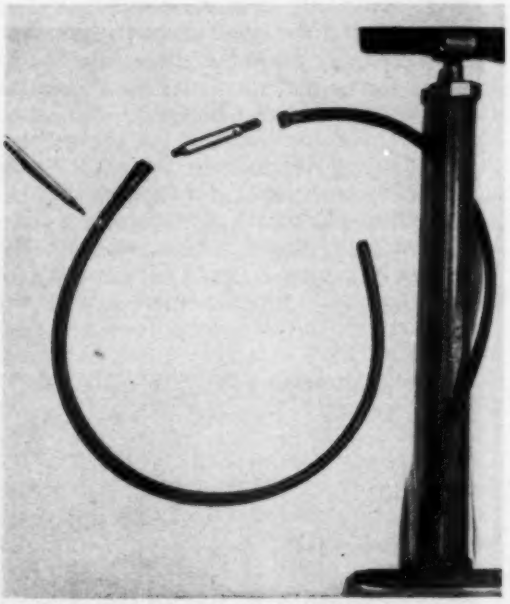


Fig. 4—Apparatus for artificial respiration with parts in correct relative positions. Pencil indicates exhaust opening in catheter.

hole in the tube and makes a stroke with the pump long enough to inflate the lung. The thumb is instantly lifted, and expired air can then be heard escaping through this opening. At the same time, the pump handle is lifted for the next stroke. The thumb again closes the opening in the tube and another stroke is given. This should be practiced as soon as possible after the patient is anesthetized, so that the operation becomes mechanical. The surgeon should check carefully to be sure that a minimum of air is escaping from the larynx around the tube. The pharynx may

be packed with damp sponges if necessary to insure minimum leakage.

With artificial respiration properly applied, the patient will make no respiratory movements itself. If it does attempt to breathe, look for a leak around the larynx or take longer or more rapid strokes with the pump. This step must be fully mastered b e f o r e opening the abdomen. The anesthetist should be provided with a chair and a low stool for his pump, since his job will be very tedious.

Anesthesia. — Pentobarbital sodium, is administered intravenously, slowly, and quietly with care not to excite the patient, until deep anesthesia is achieved. The respiratory device should be on hand, since the patient may require assistance at any time now. If it is necessary to supplement the anesthesia during a long operation, more pentobarbital sodium may be given intravenously, or a sterile solution may be dropped into the peritoneal cavity through the incision, in 1/2- to 1-cc. doses.

The animal's abdomen is closely clipped or shaved from the pubis to the middle of the chest and well down on the sides. The abdomen is scrubbed with soap and water and is rinsed with ether, and the dog is then arranged on the table.

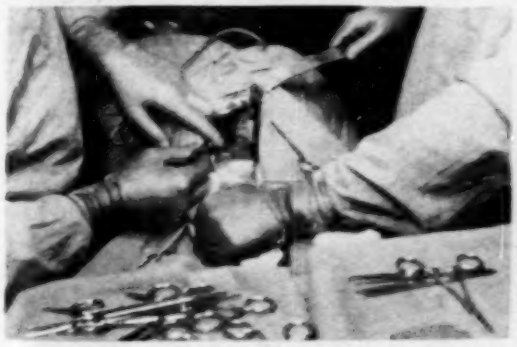


Fig. 5—Exposure of diaphragmatic wound.

The patient's position on the table deserves considerable attention. It is placed on its back in a trough or between sandbags. The chest is elevated by tilting the table, and the hind legs are tied down fully extended. The animal's front legs are not tied in extension, as this would make the abdominal wall too tense, but are secured at the side or flexed beside its neck. Lateral motion is prevented by the use of sandbags. This can only be described as a slumped position. This is essential, for the belly wall must be fully relaxed to permit good retraction of the abdominal incision.

The abdomen is now prepared with three alternating s c r u b b i n g s with 1:1000 Zephiran solution and 70 per cent alcohol, finishing with alcohol. Artificial respiration is started, and, with the surgeons scrubbed and gowned, and all else in readiness, the operation is started.

Surgical Repair.—Drapes are laid, and a laparotomy incision is made from the xiphoid to a point midway between the umbilicus and the pubis. Upon opening the peritoneum, a sheet of tissue, resembling omentum and containing much fat, will be seen between the umbilicus and the xiphoid. We believe this to be the falciform and round ligaments of the liver, and, in recent cases, we have been removing this. When present it obstructs the view and impedes progress.

We operate through a midline incision, as it enables us to expose all of the diaphragm. We once tried a transverse incision but did not obtain as good exposure. A thoracic incision, as recommended by Secord,[4] has always seemed attractive, and we feel that if we could know that the tear was confined to one side, it would be the

Fig. 6—Suturing diaphragm.

better approach, but, since we are rarely certain of this, we have not given up the abdominal incision.

With the abdomen open and the hepatic ligaments removed as described, the rest becomes largely a matter of doing as judgment dictates, according to the condition found. The hernia is now clearly visible, and the displacement of organs can be plainly seen. Replacement may be easy or very difficult. In some cases, we have had to enlarge the diaphragmatic

wound. We frequently use a retractor as a scoop or a shoehorn to withdraw a lobe of liver. Grasping the viscera with damp gauze secures a firm hold with a minimum of digital pressure.

When the organs are entirely removed from the thorax, they should be packed off with sterile gauze or thin towels kept damp with physiological saline solution.

The diaphragmatic wound should now be studied carefully to determine its shape and course and to be sure that suturing is done in such a way that there is reasonably accurate reposition of the wound edges (fig. 5). This is particularly important in a Y-shaped tear. We frequently place several interrupted sutures at strategic points to secure and hold this apposition before commencing the final closure (fig. 6).

Number 0 medium chromic gut is ideal for suturing, as it is not too large and still has sufficient strength to enable one to use sutures for traction and to tie knots in awkward positions. Single interrupted or interrupted mattress sutures are preferred, but, since suturing in the depths of the wound may be difficult and time-consuming, we sometimes sacrifice perfection for speed and use a continuous suture. Such a continuous suture, should be tied off frequently and begun anew, so that too much of the closure will not depend upon a single continuous strand.

Any fluid in the chest should be aspirated or taken up with sponges. With the diaphragm closed, reëxamine all parts of the wound for gaps. If any remain, place another stitch or two, since respiration may "suck" omentum or intestine into such a space.

The abdominal wound is now closed in the usual manner. Our practice is to close the peritoneum with a closely placed continuous suture of 00 chromic gut, the rectus sheath with interrupted sutures of the same material, the fascia with a continous row of the same, and, finally, the skin with interrupted silk sutures.

The next step is to exhaust all air from the pleural cavity in order that the normal intrathoracic pressure be restored and the collapsed lungs be allowed to expand. We find it convenient to use a Scannell transfusion syringe which is equipped with a three-way tip for this purpose. This is connected with an 18- or 20-gauge needle introduced between the ribs into the pleural space at its highest point. Air is then aspirated into the syringe and is discharged through one of the other outlets until all of the air is exhausted. As much as several hundred cubic centimeters may be removed before this step is complete. An ordinary 50-cc. or 100-cc. syringe can be used for this purpose, but do not leave the needle disengaged too long, as air can return to the chest through it when it is disconnected from the syringe.

During this entire procedure, artificial respiration has been maintained. It is now time to allow the patient to do his own breathing. The anesthetist ceases pumping, and removes his thumb from the opening in the tube still keeping the tube in the trachea. The first attempt at respiration may be slow in coming, since the blood is usually overcharged with oxygen and the CO_2 level is too low to stimulate the respiratory center. As long as the color of the tongue remains a normal pink, artificial respiration is not needed, and, in thirty seconds or so, the patient will take a breath. The respiratory rate, at first slow, will soon increase and in a few minutes should be normal. If respiration results in the exchange of a small volume of air, indicating incomplete lung expansion, or if cyanosis should begin to appear, the patient may be assisted with the pump, or a little oxygen may be given. The tube is removed only when the patient is breathing normally, and his color is good.

Postoperative Care.—The wound should be covered with a light dressing of sterile gauze and stockinette. Tight bandages which would interfere with breathing are to be avoided. We administer sulfathiazole for the first week following surgery. Our dosage has been 1 gr. per pound, every twenty-four hours, divided into four doses. The first dose should be the twenty-four hour dose. A clysis of saline and dextrose solution may be indicated, or better still, a transfusion if the color is pale. Transfusion is particularly valuable in restoring the loss of blood proteins. The large volume of serum and blood, aspirated from the thorax and abdomen, often several hundred cubic centimeters, although not actually in the circulation, does represent a loss to the body which cannot be compensated for by injections of saline and dextrose solution. A high protein diet seems to hasten the healing process.

The patient should not be fed any solids for twenty-four to forty-eight hours and then should be given an all-meat diet for the next seven to ten days. Roughage is avoided until healing is well progressed.

Barring complications, we expect the patient to be discharged in twelve to fourteen days. One should allow adequate time for firm union of the diaphragmatic wound and should only incidentally be guided by healing of the abdominal wound.

CONCLUSION

As with all surgery, experience is attended with increased success. We have made errors that have cost us patients, and we have saved patients when we eliminated these errors. For this reason, no attempt has been made to determine our percentage of recoveries, since this could not be a fair figure. At the beginning, the mortality was perhaps 50 per cent. The last six cases all recovered, not including patients which died before treatment could be started.

Two things have made these operations possible and successful: Development of a method for carrying on artificial respiration and a thorough understanding by the anesthetist of his duties are essential before surgery can be started. Aseptic technique permits a long incision, invasion of the thorax with a minimum likelihood of infection, and insures a maximum freedom in exposing and repairing the hernia.

SUMMARY

We call to the attention of the profession the fact that rupture of the diaphragm is a common injury and that, in selected cases, repair can be attempted with the expectancy of a high rate of recovery.

Etiology, pathology, and diagnosis of diaphragmatic hernia is discussed and the importance of radiographic examination is stressed.

A simple method of providing artificial respiration is presented and a procedure of repair through a laparotomy incision is described with certain post operative procedures.

Finally, it is our desire to again pay tribute to Secord's original work.[4] Many phases of the subject which might have been included at this time have been eliminated, since it would only entail needless repetition.

References

[1]Necheles, H., and Olson, W. H.: Diaphragmatic Hernia in the Dog with Complete Atelectasis of One Lung. J.A.V.M.A., *100*, (1942): 67.

[2]Schneider, R. H.: The Surgical Repair of a Diaphragmatic Hernia in a Dog. J.A.V.M.A., *85*, (1934): 675-679.

[3]Schnelle, G. B.: Veterinary Radiography, Diaphragmatic Hernia. North Am. Vet., *20*, (1939): 36-42. The Thoracic Esophagus. North Am. Vet., *21*, (1940): 29-34. Congenital Deformities. North Am. Vet., *22*, (1941): 103-106.

[4]Secord, Alan C.: A Study of Diaphragmatic Hernia in Small Animals. North Am. Vet., *23*, (1942): 590. North Am. Vet., *23*, (1942): 657.

[5]Dukes, H. J.: The Physiology of Domestic Animals, 5th Edition. Comstock Publishing Co., Ithaca, N. Y., 1942.

[6]Markowitz, J.: Textbook of Experimental Surgery. Wm. Wood & Co., Baltimore, Md., 1937.

[7]Homans, J.: A Textbook of Surgery, 3rd Edition. Charles C. Thomas, Springfield, Ill., 1935.

Sundust in Surgery

By sundust is meant the floating particles seen in a beam of light shining through a window. This ubiquitous dust was one of the germ carriers which Surgeon Lister sought to expunge with his carbolic spray and impervious wrappings. Except for the properly air-conditioned room, sundust is everywhere indoors. It is no less common in the surgery of today than in the earliest Listerian operations, and no less important.

To illustrate the potentiality of sundust in surgery, one has but to think of the manual of milking cows. When a milker sits down with stool and pail to milk a cow, the milk is showered with variable amounts of sundust from the beginning to the end of the process. The milk contains germs not shed by the udder. Shortly after the turn of the century, when clean animal surgery was infantile, our seldom-slumbering Bureau of Animal Industry (*See* Yearbook, 1907: p. 31) gave a lesson in surgery as well as in milk hygiene by pointing this out in the case of tuberculosis. That was to say, the presence of Koch's bacillus in milk did not signify mammary tuberculosis. The source may be the ever present sundust of the stable — the common operating room of veterinary medicine. A matter to heed is that the wound, like the milk pail, is exposed to ambient air.

Persistent coital mimicry is responsible for pelvic fractures in nymphomania and stilbestrol derangements.

Breeding Efficiency

In a study of the results of artificial insemination at the University of Nebraska, it was found that the number of services per conception is highest during late summer, August being the high month with 2.24. It also was found that the breeding history of the previous year was not reliable in predicting the future history, and that the services required in a heifer were not a guide to her record as a cow. Breeding efficiency was not reliably transmitted from dam to daughter, although it does appear to be a family characteristic.—*J. Dairy Sci., Sept., 1945.*

Hereditary Defect in Cattle

A Hereford cow, observed over a period of six years, had normal female calves, but each male calf had an extra toe on each front foot. At birth, the calves walked normally, but when they attained a weight of 400 to 500 lb., they began to have trouble walking and at 600 to 800 lb., they were tender and lame. The same defect was noted in male calves from the daughters of this cow.—*J. Hered., 36, No. 3, (1945): 81-82.*

All breeders with herds good enough to attract aspiring herd improvers would be helping the dairy industry, and themselves as well, if they furnished each buyer with information about their system of feeding and management, says E. J. Perry, of New Jersey.

A well-bred cow may not produce more milk on a minimum amount of feed than an ordinary cow, but she will eat enough more (if given the opportunity) so that the profit at the end of the year will be larger.

The actual feed cost per cow per year should be higher in a good herd than in a poor one; it is the ability of the good cow to make use of the extra feed she eats that makes her a good cow.

The national wool crop for 1945 was the smallest since 1928.

Lawsuits and Unfit Food

Under the headline "This Is the Verdict," Leo T. Parker, Cincinnati attorney (*Food Industries,* May, 1945), warns the manufacturers and handlers of food that they should know whether their offerings are fit for human consumption, and that food sellers will do well to acquaint themselves with the kind of evidence that leads to verdicts unfavorable to them. While the buyer who eats pork, for example, with the knowledge or means of knowledge that it had not been properly cooked is guilty of contributory negligence, a higher court has held that, within the laws of the state concerned, meat infected with *Trichinella spiralis* is diseased, and that the sale of such meat renders the seller negligent even if he does not know the facts. This decision means that the seller would be liable in damages to the purchaser, if sickened thereby. However, any suit for meat poisoning must be brought within six months. The author stresses food inspection not only in respect to food failing to conform to local and federal laws but also in exercising due care in eliminating harmful ingredients, such as a bone in a can of soup that was fatal to a baby. In other words, government inspection is not a substitute for due care.

It seems that court decisions in food-injury cases beggar analysis by laymen. Though higher courts seldom hold sellers strictly liable for illness resulting from canned food, a higher court held a retailer responsible for selling a can of peaches containing a worm that caused serious nausea and vomiting followed by grave illness. The consumer—a woman—sued the grocery company for damages and recovered damages, notwithstanding that the retailer had no way of knowing the can contained a worm. It was a sale of "diseased, corrupted, adulterated, or unwholesome food," within the wording of the law, and therefore the negligence was charged up to the seller, not the canner.

It is also worth knowing that deaths from food poisoning come within the double indemnity clause of accident insurance policies.

CLINICAL DATA

Clinical Notes

The big problem in the immediate use of penicillin, says *Hoard's Dairyman* (Sept. 25, 1945) is that no dosages have been worked out.

Singsen of the Storrs Agricultural Experiment Station, working with Mitchell of the University of Illinois, has shown that sulfa drugs have no effect on transplantable lymphoid tumors of fowl.—*From Poultry Sci., September, 1945.*

The newest link to the avitaminic chain is vitamin B_c, an antianemia factor synthesized in pure crystal by the research laboratory of Parke, Davis and Company. It is a close relation to folic acid. The main natural sources of this fraction are liver and yeast.

Two outbreaks of bovine bronchopneumonia were found to be associated with an infection resembling *Bacillus actinoides*, and are reported in the *Journal of Comparative Pathology and Therapeutics* for April, 1945. The condition could be reproduced by intranasal instillation of early cultures.

Staphylococcosis, a disease of young geese, associated with the finding of Staphylococcus, occurs in acute and in chronic form. The primary lesion and point of entrance of the infection is believed to be the under side of the web. Sulfadiazine was ineffective against the cultures, but penicillin was definitely bacteriostatic *in vitro.—From J. Comp. Path. & Therap., April, 1945.*

Penicillin is of unparalleled value in the treatment of acute pulmonary infections (human), but as chronicity develops it becomes less effective.

The susceptibility of hamsters to tularemia approximates that of white mice *(Pub. Health Rep., July 20, 1945)*. They are equally susceptible to subcutaneous and to intraperitoneal inoculation.

Gramicidin, which has been modified with formaldehyde, is only 1/23 as toxic to the tissues as the untreated, and is only 1/12 as hemolytic. Despite these favorable changes, it still retains all of its antibacterial potency.—*From Science, 102: p. 274.*

The value of DDT in the control of chicken lice in concentrations up to 10 per cent *(Poultry Sci., Sept., 1945)* was not superior to sodium fluoride and did not protect chickens after the usual life cycle of two to three weeks. A 3 per cent concentration was inferior to sodium fluoride.

Melophagus ovinus absorbs derris dust through the spiracles and the tracheal system, says a bulletin from the Berkhamsted station in England. The amount of dust entering the trachea is governed by the structure of the inspiratory spiracles and the rate of flow of the inspired air.

The widespread prevalence of listerellosis in animals establishes them as possible reservoirs of infection for man, *(J. Am. M. A.*, Sept. 15, 1945. It is believed that the organism acts as a contingent invader in infectious mononucleosis rather than as an incitant of the disease. Treatment with sulfonamides appears to have been successful.

Corrigendum—Page 241, (October, 1945) of the JOURNAL carries an item on rabies in an elephant, which was inadvertently called tetanus in the title.

Sulfathalidine in the Treatment of Colibacillosis of Turkey Poults

L. H. SCRIVNER, D.V.M.
Wellman, Iowa

SULFATHALIDINE is one of the few drugs which has been shown to possess definite antibacterial activity against the coliaërogenes group of organisms within the intestinal tract. Thorp, *et al.*[1] showed the value of this drug in reducing the *Escherichia coli* and *Aërobacter aërogenes* organisms of the intestinal tract in infectious calf scours. In addition, toxicological studies showed that two to four times the therapeutic dose could be administered to calves without evidence of the blood concentration rising to dangerous levels or toxic conditions developing.

In our experience, colibacillosis of poults is a rather common condition, the diagnosis being based upon cultural studies of the coliform organisms in the organs of recently killed diseased poults and upon an absence of other recognizable causes. In such cases, we have not hesitated to make a diagnosis of colibacillosis regardless of the facts that few such cultures have been inoculated into experimental poults to prove their pathogenicity.

In view of the work conducted by Thorp and coworkers with sulfathalidine* in the treatment of colibacillosis, the drug was administered to the several groups of poults as described in the following case reports.

Case 1.—In an original group of 5,290 poults, losses became alarming on the fourth day, and, by the sixth day, when the clinical and bacteriological diagnoses of colibacillosis were established, the losses had reached approximately 50 poults daily. To the 26 per cent protein mash which the flock had been fed, there was added 4 lb. of sulfathalidine per ton. During the first two days of treatment, losses remained about the same, but, following this, losses dropped remarkably fast until, by the fifth day, the loss was only five poults. Treatment was discontinued after the seventh day, as the losses remained so low that they were not considered abnormal.

Case 2.—This group originally contained 4,040 poults, and no abnormal losses were reported until the poults were 24 days old, when losses had reached 30 to 40 birds daily. On the twenty-sixth day, when diagnosis was established, sulfathalidine was added to the mash in the amount of 10 lb. per ton. Again, no decrease in losses was noticed until the third day of treatment, at which time there was a decided drop. On the fifth day, only 4 poults died. Treatment was discontinued at the end of the fourth day, but losses remained at a level not considered abnormal.

Case 3.—A flock of 2,000 poults suffered some losses not considered abnormal up to 18 days of age. The losses mounted after this age, and, by the twenty-fifth day, when the diagnosis of colibacillosis had been established, the deaths were approximately 20 per day. Sulfathalidine was administered in the mash at the rate of 5 lb. per ton. Treatment was continued for seven days, at which time losses were averaging between 5 and 10 birds per day.

Case 4.—A flock of 2,500 poults suffered some losses that were not considered by the owner as being abnormal up to the twenty-first day, but they reached 10 to 25 daily by the twenty-sixth day. Diagnosis of colibacillosis was established and treatment was begun on the thirtieth day. Four pounds of sulfathalidine per ton of mash was used and treatment continued for four days. Losses remained at approximately the same level.

From these observations, it would appear that sulfathalidine is of value in the treatment of colibacillosis, provided the disease appears at an early age, and treatment is begun promptly. Four pounds of the drug per ton of mash appears to be as effective as 10 lb. per ton.

Veterinarian, Maplecrest Turkey Farms, Wellman, Ia.

*Sulfathalidine for this work was supplied by Sharp & Dohme, Inc., Glenolden, Pa.

[1]Thorp, W. T. S., Pisciotta, V. J., and Grundy, Cora B.: Sulfasuxidine and Sulfathalidine for Infectious Calf Scours. J.A.V.M.A., *104*, (1944): 274-278.

The Treatment of Grubby Cattle

Wartime shortage of leather aroused interest in Hypoderma, sp. whose larvae wend their way from the hair of the heels to the skin of the back of cattle, with a resulting loss of many millions of dollars in hides, and a stimulated interest in grub-control projects too long postponed. The little farmer of Holland and Denmark

From the Nebraska Cattleman
The popular dust method of treating grubby cattle
Inset.—The heel fly—Size ½ inch.

and a few in this country, for example, kept down heel-fly troubles by squeezing out warbles by hand in the spring of the year, knowing that every larva squeezed out was one heel fly less to torture his herd when turned out to pasture later on. Coöperative work in the low countries of Europe had the heel fly pest well under control by simply watching for every lump that showed its face on the bovine dorsum and pressing out its contents. Dairy cows in particular were examined periodically during the spring weeks for the appearance of these nesting places of the coming pests. Reports in veterinary literature attest to the success of this simple precaution.

In this and other countries where range cattle run practically wild, the problem is a horse of another color. Hand squeezing of each individual warble was out of the question. Not having been curtailed, the warbles were too numerous and the cattle too many and too wild for that kind of manual treatment. The hope lay in some type of mass treatment, and in the discovery of some form of insecticide capable of penetrating to the incarcerated larvae. The discovery of rotenone, active principle of derris and other plants, appears to have solved the warble problem, and thanks to the trials of the Zoölogical Division of the U. S. Bureau of Animal Industry, practical methods of application on a large scale have been worked out. An article by Dr. W. T. Spencer (*The Nebraska Cattleman*, Feb., 1945) entitled, "Fight Against Cattle Grubs Now Waged in Range States" gives the formulas for the three methods of application as follows:

Dust Method

1.—Powdered derris or cube containing 5 per cent rotenone, 1 part; double ground tripoli earth, 1 part.

2.—*Ibid.*, 1 part; wettable sulfur, 1 part.

3.—*Ibid.*, 1 part; prophylite, 2 parts.

Direction.—Sprinkle 2 to 3 oz. over the back, using a quart fruit jar with a tight lid perforated by punching 10 to 15 holes in it with a 10-penny nail; work the powder through the hair with the other hand.

Wash Method

Wash the back with a mixture of 5 per cent rotenone, 12 oz.; granulated laundry soap, 4 oz.; water, 1 gal.

Dip Method

Rotenone 5 per cent, 10 lb.; sodium lauryl sulfate (wetting agent), 2 oz.; water, 100 gal.

Direction.—Work the powder into a thick paste by adding small quantities of water in the vat, then add the water. Let stand for two hours before using. Keep the cattle in the vat two minutes with their backs completely covered. Keep mixture stirred by dipping and pouring it back with a bucket tied to a rope.

Spray Method

Rotenone 5 per cent, 7.5 lb.; water 100 gal.

Direction.—Use a spraying machine that can develop 100-lb. pressure or more. Confine the cattle in a chute within reach of the nozzle held 10 to 12 inches above the cattle. The pattern of the spray should be about 6 inches in diameter at the level of the animals' backs. A too fine spray fails and a too solid one wastes the solution.

The spray method appears to be the most

practical for herd treatments, and the most economical. Dipping is still somewhat experimental and, needless to say, is contraindicated in severe weather. The dusting method is not to be discounted. Livestock Commissioner Will J. Miller, of Kansas, reported that most of the 300,000 cattle treated were given this hand treatment.

Use of Penicillin in Acute Diffuse Peritonitis

This case seemed worth reporting because of the dramatic results brought about by the use of penicillin sodium.

On April 15, 1945, a 7-year unspayed female Cocker Spaniel was presented for treatment. She had a soft, fluctuating swelling as big as a man's fist extending from the left side of the vagina to under the left inguinal mamma. The animal seemed normal in every respect except for the enlargement. A diagnosis of inguinal hernia had been made a year before when the swelling was quite small, but operation was not considered necessary. In view of the extreme enlargement and inability to replace any of the contents, I found it difficult to be sure of the diagnosis but advised immediate operation.

Operation.— On incision, the swelling was found to contain part of the body of the uterus and about four inches of each cornu. All were greatly distended and it was found impossible to replace any part of the cornua through the inguinal ring without danger of rupturing. Therefore, the body was ligated, amputated and removed, and the same was done to as much as possible of each cornu. The three stumps were then pushed back into the peritoneal cavity, the inguinal ring sutured, and the skin and fascia closed. The animal was eating nicely in two days. Because of hemorrhage and shock at the time of the operation, it was deemed inadvisable to continue with an abdominal incision to remove the remainder of the cornua and ovaries. The amputated portions contained much pus. It was my intention to build the animal up for a subsequent removal of the remaining stumps, but on the eighth day, the temperature rose to 104.2 F., and, because of fear of leakage from the stumps of the cornua, I decided to remove them immediately. With the aid of sulfathiazole, the temperature was brought down to 102.4 F.

Second Operation.— On entering the abdominal cavity, it was seen to contain pus. One cornu burst on touching it, discharging several ounces of pus and a decomposing fetus into the peritoneal cavity. Remains of both cornua and the ovaries were immediately removed, as was the decomposing fetus, while as much of the pus as possible was soaked up with dry sterile packs. Ten cubic centimeters of Neoprontosil were injected into the cavity and the incision was closed.

Stimulants, saline solution, and Neoprontosil were injected, but in eight hours the temperature had risen to 106.2 F., and it seemed evident that here would be a fatality caused by acute diffuse peritonitis.

At 8:00 p.m., penicillin sodium treatment was started. Results are given in table 1.

Table 1—Results of Penicillin in Acute Difuse Peritonitis

TIME	UNITS PENICILLIN	TEMPERATURE
8:00 p.m.	10,000, Intraveneously 10,000, Intraperitoneally 10,000, Intramuscularly	106.2 F.
11:30 p.m.	10,000, Intraperitoneally 10,000, Intramuscularly	105.8 F.
3:00 a.m.	10,000, Intramuscularly	104.2 F.
7:00 a.m.	10,000, Intramuscularly	103.2 F.
10:30 a.m.	10,000, Intramuscularly 10,000, Intraperitoneally	102.4 F.
12:00 noon	none given	101.6 F.
1:30 p.m.	5,000, Intramuscularly	101.4 F.
5:00 p.m.	5,000, Intramuscularly Penicillin discontinued.	101.5 F.

The patient gradually gained strength and made a complete recovery.— *Daniel T. Woolfe, D.V.M., Peekskill, N. Y.*

Brucella Allergy in Veterinarians

As early as 1929, an allergy of this type was recognized. Papular eruptions appear on the skin of the arms after removal of fetal membranes from Brucella-infected cattle. Practitioners confronted with this problem have been advised by Dr. I. Forest Huddleson (*North Am. Vet.*, August, 1945) to rub equine or bovine blood serum, with a titer of 1 : 5,000 or higher, on the arms as soon as possible after exposure, and leave it there for five minutes or longer. This precipitates allergenic materials in order to slow up or prevent their passage through the skin, and it has the desired results.

Animal Blood Bank

Senior students in the College of Veterinary Medicine, Pullman, Wash., have developed a blood bank for use in the clinics. Donors of blood must be in good health and free from transmissible disease. Dogs are bled with an 18-gauge needle, and as much as 10 cc. per pound of body weight may be taken without danger. Horses and cows are bled with a 12-gauge needle, and as much as 2,000 cc. may be taken from a large animal of either species.

Preservative and anticoagulant solution is made according to the following formula:

Dextrose	4.68 Gm.
Sodium citrate	0.43 Gm.
Monobasic sodium phosphate	0.025 Gm.
Dibasic sodium phosphate	0.25 Gm.
Distilled water to make 100 cc.	

Of this solution, a final concentration of 10 per cent is needed to maintain the desired effect. Blood is drawn and stored in clear serum bottles, so that 50 cc. of the anticoagulant solution is placed in the bottle, sterilized, and then protected by a rubber skirt stopper and held under refrigeration until needed.

At time of administration, the bottle is rotated gently to mix the cells. Shaking produces rapid hemolysis and the formation of foam. The blood is NOT warmed before injection, being less likely to produce shock and undesirable reactions when cold. Typing is necessary only in the horse, and injections may be made at the rate of 4 cc. per pound of weight in the dog; the cow or horse will tolerate from 500 to 3,000 cc.

Whole blood transfusion is contraindicated in acute pulmonary edema, cardiac decompensation, massive pulmonary embolism, and severe nephritis.—*Veterinary Student, Summer, 1945.*

Tuberculosis in England

As a consequence of the war, there has occurred in Great Britain not only an arrest of the downward trend of tuberculosis, but a considerable increase over prewar levels in mortality from the disease, says the *American Journal of Public Health* (August, 1945). There have probably been far greater increases in certain enemy-occupied countries. The human type of Mycobacterium has been chiefly responsible for the increase; increased exposure to infection also has been a major factor.

Subtilin, a New Antibiotic

An extract of *Bacillus subtilis*, named Subtilin, has been developed by Dr. Anthony J. Salle, assistant professor of bacteriology, University of California, at Los Angeles, and announced in the newspapers as an antibiotic of value against *Mycobacterium tuberculosis, in vitro.* The extract was found to be nontoxic in animals and man, and is under trial in the treatment of tuberculous animals. Search for information on this particular product reveals that an extract of *B. subtilis*, named Cupal, was perfected by Hutschenreiter, a Vienna bacteriologist, some twenty years ago, and employed by him and others in the treatment of arthritis and rheumatism.

Plasma Protein Metabolism

The liver is concerned with the production of many of the plasma proteins and with the maintenance of normal levels of these proteins in the circulating blood. The liver really is the "master organ" for the various protein metabolic processes. It stores protein, it makes protein (fibrinogen, prothrombin, and other globulins and albumins), and it aggregates amino acids and other nitrogenous materials coming from the gastrointestinal tract into protein.—*Nutrition Reviews, July, 1945.*

Spraying for Ticks

After 110 experiments over a period of three years, a spray solution has been developed by Dr. R. L. Squibb, of the Interamerica Institute of Agricultural Sciences, for specific use against the cattle tick. It is a mixture of DDT and rotenone, of which as little as 100 cc. costing less than one cent, if applied as a fine spray, is enough to rid one animal of ticks. Protection has continued for as long as 80 days, and in the 7,000 applications used there has been no indication of any poisonous tendency.—*From Science, Aug. 17, 1945.*

It's Their Color That Does It

At least, so says Sam Bartlett in the *Aberdeen-Angus Journal* for September, 1945. Blacks, as an entire breed, are immune to certain diseases and highly resistant to others. The dark-skinned peoples are dark-skinned simply because they are the only races that can survive exposure to the rays of the tropical sun. They are the survival of the fittest.

Cancer of the eye attacks all breeds of beef cattle which lack the element of protective coloration. Angus cattle, being heavily pigmented are immune, and they are also completely immune to photosensitization. While being protected from the rays of the tropical sun, the Angus is also protected from, and has survived the rigors of, bitter cold latitudes. They were developed in the marrow-piercing weather of Scotch winters. A breeder of Lacombe, Alberta, Can. (S. J. Henderson, same journal), says, "I state flatly that black cows will live longer and produce longer than any other breed of beef cattle."

The Aberdeen-Angus is naturally polled, and cows with horns are strictly declassé among modern cattlemen. First-cross Angus calves also will prove to be about 95 per cent polled.

Wash Hands and Sterilize Instruments, or Else

The case of *Lanier v. Trammell* (Arkansas) was that of a patient who won a suit brought against an eye specialist for damages suffered from infection due to unwashed hands and unsterilized instruments used in removing a pterygium. The patient was able to prove to the satisfaction of the jury that the surgeon sharpened his knife on a whetstone and proceeded to remove the growth without sterilizing the knife and washing his hands.

Notwithstanding that expert witnesses testified to the numerous ways such a surgical wound might become infected, the contention of failure to take the usual precautions mentioned was sustained all the way to the Supreme Court of that state.

The decision is reviewed at length in Medicolegal Abstracts of the *Journal of the American Medical Association* (Aug. 11, 1945), and is related here as a lesson on what might happen to a veterinarian under similar circumstances.

Use of Penicillin

Acute puerperal mastitis in women was treated with penicillin, using 840,000 units for each patient in a five-day plan of treatment. Sulfonamide therapy was relatively ineffective, and is not recommended as a substitute.

Oral penicillin has been used in treatment of human pneumonia, but it was necessary to administer 750,000 units the first day and from 400,000 to 600,000 units daily for the succeeding seven or more days—*J. Am. M. A., Sept. 29, 1945.*

Phenothiazine Trial in Calves

An experiment reported in *Veterinary Record* (Sept. 15, 1945) indicates that phenothiazine had no effect as a preventive measure against nematode disease when there was a high intake of infective larvae, and that it had no effect on immature or larval forms of the parasites. Doses varying from 40 Gm. to 100 Gm. were given, and no toxic or harmful effects were observed.

Erysipelas Protection in Rabbits

Experiments demonstrate that in rabbits a viable antigen produces an antibody which is not produced by killed antigen. In the immune serum so produced, it was shown that the protective efficacy was due to the presence of antibody which could not be easily absorbed completely. Gledhill [*J. Comp. Path. & Therap.*, (April 1945): 93-108] reports that no evidence was obtained to indicate that immune serum produced against one strain would fail to set up protection against a strain from another source.

It is no exaggeration to say that a cow grazing on the richest pasture would starve were it not for the bacteria of the paunch.—*Lifted from an editorial in the Veterinary Record.*

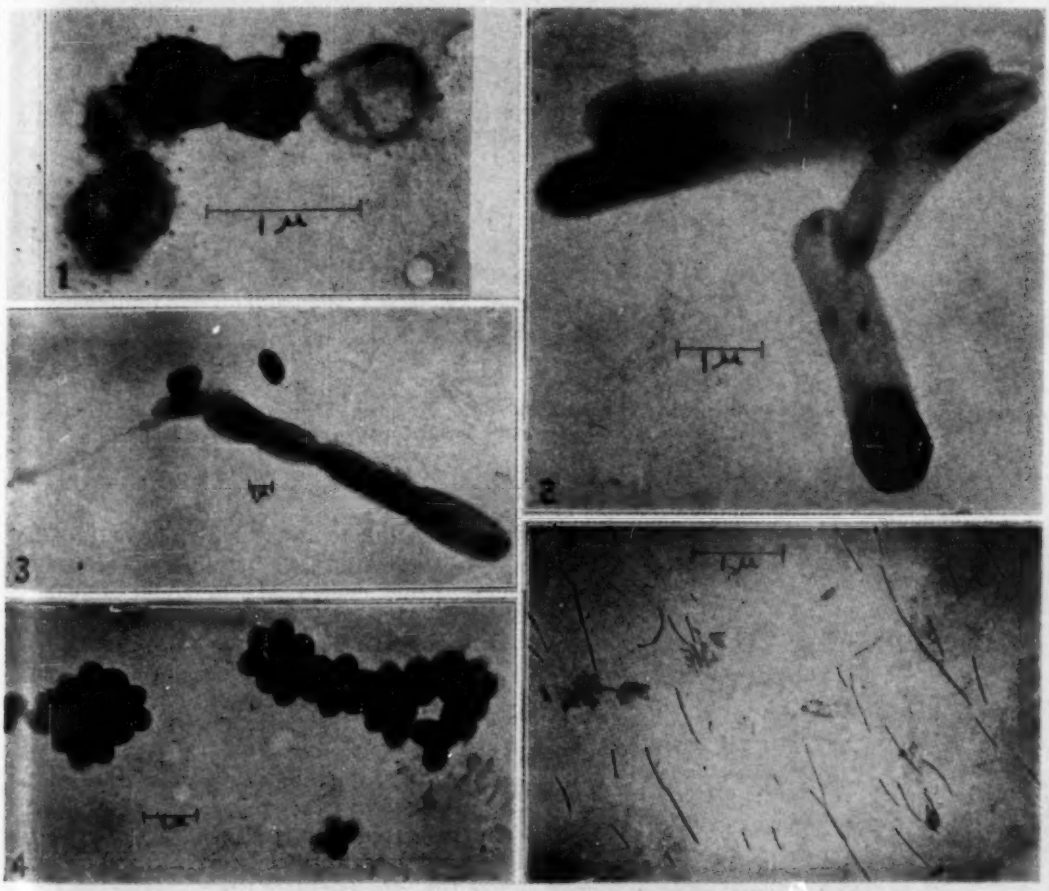
Salt in Hookworm Sanitation

As pointed out by the USDA, the feasible way to rid contaminated ground of hookworms is to soak kennels, runs, etc., with saturated salt solution twice a week. *The Dog News* suggests instead a method pursued by a Foxhound breeder who keeps a box of wet salt in the kennels in such a way that the dogs must walk through it and thus keep the ground salted. Besides, this breeder says that the salt actually toughens the pads and disinfects cuts and abrasions, although the primary purpose is to destroy hookworm eggs.

Saving Barnyard Babies

One of the surest ways to increase livestock profits is to cut down the losses of newborn animals, says Dr. C. W. Bower, of Topeka, Kan., in the October *The Kansas Stockman*. He explains how millions of dollars could be saved each year by better care of baby pigs, calves, colts, lambs, and chicks.

Well-Known Organisms Under the Electronic Microscope



—From Puerto Rico Journal of Public Health, July, 1945

Fig. 1—Streptococcus pyogenes. x 24,000. The three pale cells are undergoing cytolysis.

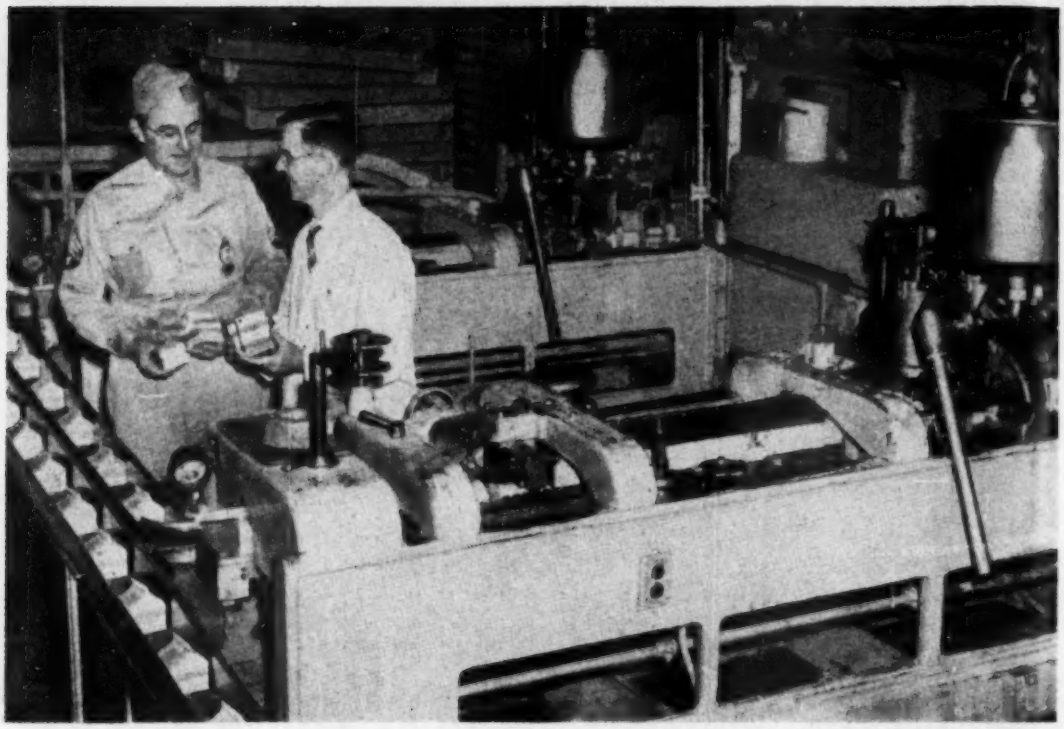
Fig. 2—Clostridium tetani. x14,000. Terminal spores are beginning to form after three days of incubation.

Fig. 3—Bacillus anthracis. x4,500. Free spores are deeply stained, and others are forming in the cells.

Fig. 4—Staphylococcus aureus. x10,000.

Fig. 5—Cucumber Mosaic virus. x20,000. (mosaico del pepino).

Say! This Tastes Like Real "Cow Juice"



—U. S. Signal Corps Photo

Fig. 1—Milk for the armed forces is produced under rigid inspection. Sergeant Strauss and a Hood laboratory man, John Mahoney, are taking some samples off the conveyor for testing.

U. S. Signal Corps Photo.

Fig. 3—Capt. L. I. Case, port veterinarian, and T/4 R. Strauss, veterinary inspector, are inspecting frozen milk before loading.

Frozen whole milk is being supplied to wounded soldiers returning home on hospital ships (*See* September JOURNAL, p. xxiv). More of the story has been released in *The Spotlight* (H. P. Hood & Sons, Boston), and we take pleasure in presenting the added information.

Captain L. I. Case, V. C. (Ont., '40), provides the story of coöperative effort between the Veterinary Corps and the officers of the Hood Company, who studied and experimented with the problems of freezing milk until they developed a product that met the standards of the company and was acceptable to the Army.

The secret of production was found to be a combination of two very important factors, a high quality of milk and perfect homogenization. This homogenizing process breaks up the fat globules and disperses them uniformly throughout the milk. Try-

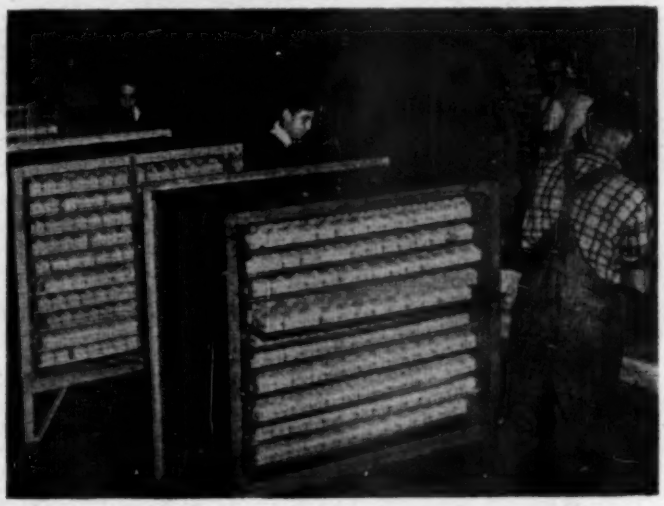


Fig. 2—Forty-eight half pints are packed in each carton and a storage lot number is stamped on the carton for easy identification. The cartons are stored at zero temperature.

—*U. S. Signal Corps Photo*

ing to freeze fresh milk is like freezing two separate substances — cream and skimmilk—which react differently at low temperature.

All milk to be frozen is pasteurized and then homogenized. Next it is packed in half-pint paper containers, placed in trays, and frozen in a room 25 below zero, with a wind blowing at the rate of 40 miles an hour. The milk is frozen solid in 2.5 hours, at which time the containers are packed in cartons and held at zero. Thawed slowly by being left in an ordinary refrigerator for a day, after having been frozen two months, it cannot be distinguished from fresh milk, although it remains fresh and palatable for a much longer time than that.

And what the wounded GI says when he gets the milk on his hospital ship we used for a title.

Parasites in Calves

While it is reasonable to suspect poor, unthrifty calves and yearlings of worm infection, poor feed or other conditions may be responsible warns *The Cattleman* (October, 1945), and adds that therefore, it is advisable to obtain a diagnosis by a competent veterinarian to determine the actual cause of the condition, the advisability of treatment, and the dosage.

Equine Encephalomyelitis Antiserum

A western equine encephalomyelitis antiserum has been prepared by hyperimmunization of rabbits. This serum is effective in treating the experimental disease even after the animals show evidence of involvement of the central nervous system. It is less effective in monkeys than in guinea pigs—*Am. J. Pub. Health, August, 1945.*

Electronic heating is being used as a possible method of killing the virus of foot-and-mouth disease in Argentine beef, says *Food Industries* (July, 1945). Small cuts are heated "dialectrically" until a uniform temperature of 104 F. is reached, and then packaged and frozen for shipment abroad.

Streptomycin, when injected intramuscularly into guinea pigs at the rate of 5,000 units daily, for a period of 90 days, produced a chemotherapeutic effect on experimentally introduced tubercle bacilli, which was superior to that produced by 0.5 Gm. per kilogram of promin administered orally for the same length of time.—*Pub. Health Rep., Sept. 28, 1945.*

Penicillin Orally

Sir Alexander Fleming, of penicillin fame, believes that an oral form of the drug will be forthcoming because the public demands it, but he cautions that with it will come "the era of self-medication with all its abuses" and, particularly, with a degree of underdosage which will permit the infective agent to build up a tolerance for penicillin rather than succumbing to it. These remarks were made at a dinner in his honor in New York.

NUTRITION

Veterinarians and Feed Industry Must Work in Close Cooperation

The secretary of the Western Grain and Feed Association, Mr. Mark G. Thornburg, has urged the feed industry to cooperate with all groups to accomplish the greatest good for all concerned. He believes that especially essential is the cooperation between the feed manufacturer and the veterinarian. He states that the feed manufacturer must produce a nutritional feed; the veterinarian must diagnose and prescribe for the diseases; and sanitation is the duty of all. Following is the greater part of Mr. Thornburg's article which appeared in the August, 1945, issue of *The Feed Bag*.

The Western Grain and Feed Association has recognized the need of a closer coöperation between these groups and has urged the feed dealers to have their customers consult the veterinarian when disease appears. We believe such a policy is sound for best results if good faith is exercised by both groups. An over-anxious feed salesman should not try to cover up the poor quality of feed or faulty nutrition on a disease condition in a herd or flock, nor should a veterinarian try to cover up his own incompetence or lack of knowledge or his own desire to sell his services or a medicinal remedy on the feed.

I hope that from the following case a closer and better understanding of responsibility may come from stating the following factual incident.

A short time ago a feed dealer was called by the veterinarian of the community, who advised the dealer that he had better have the feed he was selling checked and examined, and advised him to make other arrangements, to get some other brand of feed, as it was causing death losses in poultry. He even went so far as to intimate the feed was poisoning the chickens. This dealer happened to be the largest supplier of poultry feeds in that territory. He had been advised by the manufacturer of the feed he was handling to have his customers call the local veterinarian if any disease should develop in the flocks. Two other local feed dealers who handled another brand of feed were diagnosing and prescribing treatment for their customers; therefore, the majority of the birds brought to the veterinarian were fed the same brand of feed. This being the case the veterinarian jumped at the conclusion it was the feed that caused the losses.

He may have been in good faith, yet at the same time he was prescribing a treatment. It developed that the doctor and his wife, who assisted him, were incompetent diagnosticians. It was easier for them to conclude the feed was the cause for the loss of chickens than to determine the facts.

The results were reported by the local dealer to the manufacturer. He was very much concerned. He knew that the same feed was being fed by hundreds of poultry producers successfully and without any loss. He immediately sent a representative of his, an experienced poultryman, a man who is not only a nutritionist, but competent in diagnosing cases, to make a thorough investigation. The local feed dealer took this representative to the various farmers where losses had occurred. He posted many birds and made careful investigation of conditions and found that the sickness in a great majority of cases was due to upper intestinal coccidiosis of different types. The disease had developed at a time when most of the producers were changing from starting mash to growing mash, and in all cases where the doctor and his wife had been consulted they advised the change of feed and prescribed a coccidiosis medicine, compounded by them to use in drinking water. The representative of the feed manufacturer found that the treatment prescribed by the veterinarian and his wife obtained fair results, but in no cases did he find that the losses were caused by the feed.

In every case where the doctor and his wife were consulted the producer had immediately changed brands of feed and, of course, the neighbors did likewise, which ruined the business of the local dealer, because of the advice of the doctor and his wife.

After the representative of the feed manu-

facturer had determined to his own satisfaction that the losses were caused by coccidiosis, and not the feed, he contacted the veterinarian and his wife, because he felt that they were sincere in their work and that nothing was being done by them other than to try to serve their clients and to get them straightened out in the diagnosing of coccidiosis. Of course, he had the reputation of his feed at stake, which was being blamed for the loss rather than the diseased condition of the flocks. He was unable to convince the veterinarian and his wife that their diagnosis was wrong. They admitted they had told their clients that this particular brand of feed manufactured by this company should be avoided. The doctor made statements which indicated that he was not familiar with all types of coccidiosis. He stated that coccidiosis was just as prevalent throughout the spring and summer regardless of weather conditions, and/or the age of the birds, which is an erroneous conclusion, that led him to believe that the mashes were at fault.

It was also obvious that the doctor and his wife believed that whatever brand of feed the majority of their clients had been feeding through the seasonal coccidiosis outbreak in young chicks was a contributing factor and should be eliminated from the production program. The doctor's statements proved that he believed that birds in poor flesh brought in for his inspection had been consuming poor feed. In his diagnosis he recognized only the lower intestinal or bloody type of coccidia as true coccidiosis and that upper intestinal types are enteritis caused by poor nutrition. The doctor and his wife also stated that in a number of cases they had added an enteritis specific to drinking water, also vitamins, and medicinal coccidosis treatment. Further discussion with the doctor indicated that he was not acquainted with the evidences of vitamin deficiency in poultry, with the exception of vitamin D.

It can easily be understood how a situation of this kind where the veterinarian and his wife, apparently conscientious in their belief, which was wrong, were ruining the business of the local dealer and interfering with the economical production of poultry in that territory.

In order to clear up the situation it was suggested by the manufacturer that the doctor enlist the services of the veterinary college at Ames to find out the true facts. The college coöperated and assigned to make the investigation a poultry pathologist from the veterinary college. He visited the community, went to the various farms, posted birds, discussed the situation with the veterinarian, the representative of the manufacturer and producers, and then gave a definite statement that the poultry losses were caused by coccidiosis and not by the feed.

The local feed dealer was very much exercised and wanted to sue the doctor and his wife for the damage they had done, but the manufacturer thought otherwise and he addressed the following letter to the doctor. In this letter the manufacturer will be known as "manufacturer"; the veterinarian, the "doctor"; the manufacturer's representative, "Mr. A" and the local feed dealer, "Mr. B." To make the story complete I am publishing also the doctor's reply.

DEAR DOCTOR:

I am writing you in regard to the recent controversy regarding poultry diseases between yourself and Mr. B, and the manufacturer.

You have kindly coöperated in getting the poultry pathologist from Iowa State College to come and determine the facts. Since he returned, I have been to Ames and have discussed the matter thoroughly with him. I think there is no need for me to recount the facts in this. Each of us is well aware of what they are.

I have never met you, but I have two friends who are also friends and close acquaintances of yours. I refer to Dr. C. C. Franks and Mark Thornburg. As you know, they are now the state secretaries of the State Veterinarians' Association, and the Western Grain & Feed Association, respectively. They both assure me that you are a man of high principles. Mr. B and co-workers have told me the same thing. Our Mr. A, whose acquaintance is much shorter, and made under very adverse circumstances, also speaks very well of your intentions.

In view of the opinion of all these men, and in view of the information both you and I have gained from the specialist from Iowa State College, I feel confident that you will take immediate steps to correct the erroneous statements you have made, and harmful impressions you have created in regard to the products of the manufacturer.

I feel sure that your self-respect and the high standard of ethics that actuates you in the practice of your profession, will cause you to take such corrective steps for your own sake.

I want you to believe that we are sincerely sorry this situation has arisen, entirely aside from any bad effect on our business or on the business of our dealer, which was considerable. Many of us in the feed industry are fully aware of the fact that food production requires the full coöperation of veterinarians and feed manufacturers. Since efficient food production is the aim of both, coöperation is absolutely necessary if that aim is to be achieved, because nutrition and disease control are inter-dependent. I am sure you hold a like opinion.

Erroneous statements and advice that create mistrust in feeds and the feed in-

dustry or in veterinarians are not conducive to that coöperation, and we sincerely deplore them.

What means you use to correct the misinformation in regard to the rôle of the products of the manufacturer in the incidence of poultry diseases in your trade territory is entirely immaterial to us. You may use letters, a newspaper article, or word of mouth.

Again assuring you that we believe that in all fairness to yourself you will want to make this correction just as much as we want you to, and that you will be glad to put into our hands or into the hands of Mr. B a letter or written statement correcting the impression poultry producers have gained from your statements regarding our feeds causing poultry diseases, we are,

Yours very truly,

"MANUFACTURER."

MR. B.

GENTLEMEN:

I wish to thank you for getting the manufacturer's poultry man out here so quickly, to investigate some poultry problems which I thought might be caused by some condition of the manufacturer's grower, which some clients were feeding. Two days after I notified you of my suspicions. Mr. A was here and "posted" chickens and found coccidiosis, which he felt was the trouble.

The specialist from Ames came a few days later and confirmed Mr. A's findings.

I have contacted the clients involved and have explained the findings in the cases they examined.

Yours truly,

"THE DOCTOR."

This is true coöperation and has resulted in a more friendly and understanding relationship bewteen the feed dealer and his local veterinarian for the benefit of all. It was fortunate in this case the manufacturer realized the veterinarian was sincere but erroneous in his conclusion, and suggested the help from the college to straighten out the trouble. We hope this incident will illustrate what can be accomplished in thorough coöperation.

Animal Protein in Pig Feeding

Pigs fed 5 per cent of meat meal in the ration attained bacon weight more quickly than pigs fed similar rations without the meat meal, according to a report in *Experiment Station Record* (October, 1945). The adding of separated milk to either ration reduced the amount of feed required, but it did not replace the meat meal.

Cooked Foods Develop Quality

Whole barley, cooked for an hour or two, increases about three times in size, is very palatable to cows, and it makes them eat more feed and gain more weight. It is doubtful, says R. W. Williams in *Aberdeen-Angus Journal* (September, 1945), if the cooking adds much to the food value, but because of its pleasant odor it increases the appetite of the cows. Adding a handful of salt while it is cooking, and then a quart of molasses for each 8 head of cattle to be fed makes it still more palatable; the molasses makes it more nutritious. For best results, mix 1 part of the cooked barley and its gravy to 3 parts of the regular grain-mix of crushed corn, crushed oats, bran, and linseed oil meal; let it stand for about an hour, and then feed just about as hot as the animals will eat it. Animals so fed are said to flesh up more uniformly and to have a mellow touch, which improves the chances of winning ribbons. Such cooking was a laborious process with the old iron kettle and wood fire, but with the new automatic electric cooker it is a simple and easy part of the chores.

Late Pasture Deceptive

Grass growing in pastures in late September and October looks good to cows, but it just doesn't "stick to the ribs," says a report from the New Jersey College of Agriculture. The digestible nutrients are down 20 per cent, and digestible protein is even lower. Cows milk well on it, but lose weight unless this is supplemented with good hay and grain.

Udder Injury

When the udder is injured or the end of the teat is stepped on, the finish of the cow as a profitable producer can be expected, warns E. J. Perry, of New Jersey. To avoid such injury, use bedding liberally, build stalls long enough and wide enough for comfort, put a curb between the stalls, prevent floors from becoming slippery, provide plenty of barnyard space, dehorn all cows, and then milk them rapidly but clean.

Phenolic resin glues, which permeate and soften wood so that it can be compressed to half its original thickness, are now available. Wood so treated resists moisture and termites.

EDITORIAL

Dr. B. T. Simms, New Chief of the Bureau of Animal Industry

Bennet T. Simms, for the past seven years director of the Regional Animal Disease Research Laboratory, Auburn, Ala., and president-elect of the American Veterinary Medical Association, has been promoted to head the Bureau of Animal Industry, U. S. Department of Agriculture, succeeding Arthur W. Miller, who retired on October 31, 1945. We congratulate the administration for having made a wise choice and the new chief for the honor conferred. A big man for a big job is the impression, first and final, however approached; professional competence, scientific qualification, administrative experience, demure judgment, clear thinking, farsight, originality, and pleasing personality are among the symbolic terms created from long acquaintance with the new chief.

Dr. B. T. Simms

Born at Emelle, Ala., Jan. 25, 1888, Dr. Simms received his early education in local schools and then attended Alabama Polytechnic Institute where he was a student in Animal Husbandry for two and one-half years and from which he received his veterinary degree in 1911. After graduating, Dr. Simms was, for two years, instructor in physiology at North Carolina State College. He took graduate work in pathology and microbiology at the University of Chicago and Rush Medical College, preparatory to his long career of twenty-five years at Oregon State Agricultural College where he organized, and later headed, the Department of Veterinary Medicine. At that time he was engaged in original research of local and national importance now indelibly etched into the world's scientific literature. His published investigations have covered a broad range of subjects including bovine brucellosis, salmon poisoning in dogs, liver flukes in sheep, phenothiazine as an anthelmintic, goiter in foals, parasites of fish, Johne's disease, and lathyrus poisoning in cattle. His more recent work on coccidiosis of calves and parasites of cattle are noteworthy contributions to livestock sanitary science. Summed up from all points of view, the command of the Bureau has fallen into capable hands for administration and development in the field and in the laboratories.

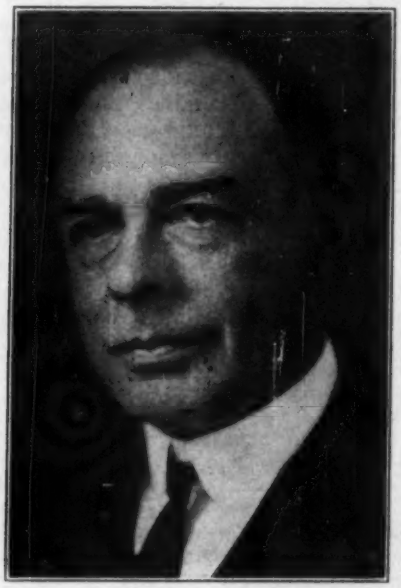
The new chief becomes a link in the chain of celebrated veterinarians—Salmon-Melvin-Mohler-Miller—who have made a high score in the mastery of livestock

plagues in a large agricultural country, from the sweeping epizoötics of the nineteenth century to the food emergencies of two devastating world wars. These men leave to posterity methods of animal-disease prophylaxis and treatment that stabilize food production wherever employed and, concurrently, through science and efficient direction, they have lifted the office of chief of the Bureau of Animal Industry to a level without parallel in agricultural economics.

Dr. Simms merits and will receive the whole-hearted support of all who are interested in animal health and livestock production.

The Retirement of Dr. Miller

The retirement of Dr. A. W. Miller from the office of chief of the U. S. Bureau of Animal Industry, on account of the regulations on superannuation which terminated



Dr. A. W. Miller

forty-four years of continuous service in that department of the USDA, should not be permitted to go on record without paying tribute to the man of quiet dignity and high efficiency to whom fell the difficult task of commanding the nation's veterinary service during the most tragic years of American history—years when feeding great armies in scattered parts of the world and stepping up animal production to unprecedented heights were the given orders of the supreme command. How well this was done is of record to the credit of the modest man who climbed by merit from the ranks to the highest office of the country's livestock industry, and who passes to retirement with the universal respect and highest admiration of his profession. The production records of the American livestock farmers, under the extreme obstacles of the mortal conflict, will forever recall the name of Chief Arthur W. Miller. What Mohler was to World War I, Miller was to World War II, and oddly enough, both stepped into the office at a moment of national peril.

A Drug Store Question

The Inquiring Reporter for *Drug Topics* (Oct. 1, 1945) came up with these two gems in response to the question: "It has been predicted that the postwar pharmacy will become a community health center. What steps would you take to make this come true?"

One answer was: "I don't believe that it's possible for this prediction to come true. It is not profitable anymore for drug stores to concentrate solely on prescriptions. It seems as if one prescription pharmacy in each district can handle all the business."

Another was: "I would suggest that we arrange all fixtures, and purchase anything necessary to a new postwar drug store. Our public relations program should include educating the public to the idea of opening and closing early. We should also advertise in community papers and take active part in civic affairs."

All of which tells us that the drug trade is not united on health subjects, so that if we will all get together and insist that proper diagnosis is basic to successful treatment, there should be less to fear from drug-store, animal-health counters.

The layman will continue to be advised to use new products, new procedures, and new treatments. Our problem is to teach him when not to use them—namely, in the absence of an accurate diagnosis.

The National Roster of Scientific and Specialized Personnel has established a cooperative arrangement with both the Army and the Navy to assist professionally qualified men in obtaining suitable positions in civilian life.

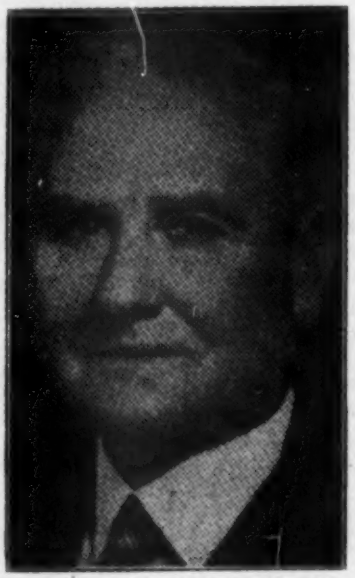
John Payne Lowe

1870-1945

When Dr. J. Payne Lowe (Amer., '91 and Nat., '93) died in Passaic, N. J., Sept. 24, 1945, his state lost a useful citizen, his community a faithful servant, his country a prominent veterinarian, and the AVMA an Honor Roll member. He was born at Little Falls, N. J., Dec. 28, 1870. On completing his college education, Dr. Lowe became associated with his brother, W. Herbert Lowe, president of the AVMA in 1905-1906, and then established himself in general practice and public office at Passaic; there he flourished as a noteworthy figure in the veterinary service of his city and state. Although somewhat less famous as a leader in national affairs than the more intrepid Herbert, Payne, as we always addressed him, was nowhere a stranger during the more active years of his professional life, being highly respected as a demure man of strong local influence, abreast of the times, and a builder of fine public relations for his profession through leadership in civic societies. He had an engaging personality, and gave sober attention to practice and public duties. Fifty-three years city veterinarian of Passaic is probably a record. "We can think of no one who has rendered more sincere and patient service, of no one who will be more genuinely missed. He was . . . in all respects a force for good in the community," an editorial tribute to him by the *Passaic Herald News*, expresses the thought we attempt to convey in the writing of this obituary.

Other press articles speak of his yeoman service in dairy and slaughterhouse hygiene, meat markets, restaurants, and bakeries, by persuasion, education, and legal action when needed. In addition he was active in livestock sanitary work for the state and served as president of the state board of veterinary examiners for twelve years (1917-1929). Much of his early practice was with horses but later he specialized in small animals.

He joined the AVMA in 1892 and was issued a life-membership scroll in 1942. At the time of his death, he was a veterinary reserve officer with the rank of major, a Rotarian who seldom missed the weekly luncheons, and he held the past-master's token of Passaic Lodge, No. 67, F. & A. M.



Dr. J. Payne Lowe

His directorships in the North Jersey Savings and Loan Association and in the New Jersey Mortgage Company are mentioned among his business connections.

In fine, few of the veterinary circle have led a fuller life and have been more generally esteemed. In the biographic anthology of American veterinarians, John Payne Lowe of residential and industrial Passaic ought to be listed not only among the most useful men of an important community, but also among the kind of practitioners needed to keep solid the underpinning of the veterinary profession.

He is survived by his widow (neé Caroline Birdsall), four children, seven grandchildren, and one great grandchild.

Veterinary Medicine, Empire Builder

In a modest but none the less forceful editorial, *The Veterinary Journal*, London, February, 1945, reviews briefly the part veterinarians have played in the development of the British Empire. Mention is made of the "help and guidance" the colonies have received from their veterinary service and the good will and the binding relationships between Great Britain and her colonies that well-managed animal husbandry has enhanced, despite diversified climates and agricultural opportunities in far-away and widely separated places. The editorial is a clue to the vigorous veterinary service of the British possessions in Africa, the Far East, Australia, and the mighty Dominion north of parallel 49 N over our way.

But what is more fascinating is the announcement that funds have been appropriated for a survey of animal husbandry conditions in the British West Indies with Prof. W. C. Miller, of the Royal Veterinary College (London), in charge—fascinating because the West Indies, skirting our precincts to the south, is an example of what happens to a country that does not maintain an approved veterinary service. Another grant has been made for the establishment of a "state veterinary service" in St. Kitts Nevis.

In colonial (American) times the British West Indies were an important livestock center which shipped sizable numbers of farm animals to the mainland and conducted an especially important traffic in horses with early New England. As a matter of fact, the West Indies is the birthplace of animal husbandry in the Western Hemisphere. One guess as to why it deteriorated. In the face of the present appreciation of veterinary science, the movement, although a century or two late, is certainly not a pedantic gesture. We, therefore, join *The Veterinary Journal* in wishing Professor Miller every success in the work undertaken and congratulate a good neighbor on the benefits ahead. Without thought of discriminating among the prominent works of British veterinarians, one is reminded of what Sir Arnold Theiler and his successors did for the Union of South Africa and adjacent tropical possessions. A country without a classical, over-all system of animal husbandry now-a-days is economically moribund—stymied.

Hippocrates of Cos, Veterinary Surgeon

If this headline, in 1945, desecrates a consecrated name, protohistorians of unbiased minds would not demand an apology forthwith. The great father of good behavior in the practice of medicine *was* a veterinary surgeon. Sorry to keep fetching this up but, being deeply indebted to the writings of Hippocrates (460-377 B. C.) on the practice of the veterinary art (hippiatrics to him), it would be the nadir of impolicy, even at this late day, to becloud an established record. For instance, in collecting a few facts about the history of phlebotomy* the other day, we ran headlong into some correspondence between the learned Greek physician and his college chum, Apsyrtus, on the subject of jugular and temporal phlebotomy in the horse, describing the operative technique, the instruments, and the effect of the intervention in various internal and external maladies. We gathered from this that there was some disagreement between the two scholars about preventive blood-letting in the equine species. Anyhow, this particular reference reconfirms the age-old contention that up to, and beyond, the Great Oath, human and veterinary medicine worked in double harness. As told by noteworthy veterinary historians, these two wings of protective biology were cruelly divorced with the approach of the present era, never to remarry and live happily ever after. All that counts here is that after the divorce proceedings, the world began to take a tail-spin and bogged down pretty low for centuries thereafter. That much is not fiction. Nor is it fictitious to write in that the mundane catastrophes (world wars) of the twentieth century, A. D., turned all minds to the ancient appreciation of domestic animals as a medium of human subsistence or, putting it another way, to the fact that, then as always, nations have found no alternative for healthy domestic animals in the little job

*Seville, H. -J.: L'art vétérinaire antique, 1er, Fascule, 1921. Reprint from Rec. de Med. Vet., 98, (1921-1922) :21-23.

of self-preservation. The intelligentsia of 1945 are beginning to see what the wise men of antiquity were driving at all the time. It has always paid to have good stockmen and trained shepherds. Obviously, we're reaching the threshhold of another era when medical science will point proudly to "Hippocrates of Cos, Veterinary Surgeon."

Could Be a Bad Guess

By 1970, says Smithburg in *Science Digest* for October, "Russia will so outweigh any politically possible combinations of European powers that she will be unbeatable." Its population will exceed that of all Europe. The population of China and Southeast Asia will exceed that of the entire world population of 1,679,000,000. To this prediction we would add: "Not unless there is a corresponding increase in domesticated animals, which, in turn, depends upon the use made of veterinary science." The prophecy is based upon technological strides and increases in population. No mention is made of bringing along the little matter of subsistence, in kind and quantity, that only meat and milk-producing animals can provide.

The Power of Professional Ethics

In retrospect ('way back), the scandals of peace have thwarted the advance of civilized people more than the horrors of war. Barring the atrocities of Hitler's gangsters, which stand apart unparalleled in human history, peace in many places has been more cruel than any war and more debasing to human behavior. War is just that, while peace until now has been but a stretch of time between the command to cease firing and the order to let 'em have it with both barrels. Granted this to be as true as it seems, it is not irrational to suggest that the ways of the learned and other professions is the road to that traditional goal of "life, liberty, and the pursuit of happiness." There is something fine in the discipline of professional life. Its achievements are visible to the blindest eye. Politics and business should try out the codes of the learned professions, the sports, the fraternal societies, the church, as the way to the ends they seek. Without the rigid ethics such as the professions obey, peace is but a truce between wars.

Animal Blood Bank Priority

Useful as it often would have been to keep within reach the material for blood transfusion in the animal clinic, it seems to have fallen to the senior veterinary students of Washington State College to establish the means of supplying that need. Under the guidance of Dr. J. E. McCoy, professor of veterinary surgery of that college, an animal blood bank was started in 1941; since then it has been maintained by senior students.

R. E. Ebright, F. Hunter, and C. Doney, acting in that capacity, described the technique pursued for collection, storage, and application, in the summer, 1945, issue of *Veterinary Student*, published at Iowa State College, and, therefore, take priority in the literature covering this specialized field.

The AVMA is but twenty-four years the junior of the oldest of the world's veterinary medical associations. The first one was founded on Oct. 13, 1829, at Caen, France, and the AVMA June 9, 1863, in New York. The attendance of the Caen convention was 19, that of New York was 41. The dean of all veterinary association presidents was Pierre Pecoq of Bayeux, Normandy. The first American having that honor was J. H. Stickney of Massachusetts.

In a historical sketch written for the Diamond Jubilee of the AVMA, New York City, 1938, the author, D. M. Campbell, said that the strength of the Association is due in part to the founders having adopted the policy of rejecting undesirable applicants and expelling recalcitrant members. If these seem to have become relatively fewer the reasons are that a more nearly uniform standard of educational qualifications and higher standards of ethics prevail. There has been no relaxation in standards of admission or of retention of membership.

The Dignity of Pharmacy

Magazines devoted to the retail drug trade point without end to the danger of pharmacy losing caste as a learned profession through the type of merchandising that gives the drug store the color of a variety shop instead of the laboratory of a learned technologist. Quoting Robert L. Swain, editor of "Your Pharmacy and Mine" in *Drug Topics:* "Once a drug store becomes only another *store*, it ceases to be a *drug* store. . . . If the sideshow outshines the circus, the limits of safety have been passed." To this obviously sound advice, one might add that in the shift to merchandising, the worthiness of other learned professions should not be overlooked. Candies, soft drinks, cosmetics, toiletry, books, toys, stationery, magazines, restaurant, and sundries galore, all under one ceiling, may be necessities of location as the JOURNAL once pointed out. But, when the druggist is brazenly lured into the field of another long-established branch of medicine, "the jig *is* up" (for professional dignity).

We have also called attention to the historical fact that the drug trade in this and other countries "missed the boat" while the livestock industry was growing to a gigantic national necessity and, therefore, failed to provide for its needs. Nor did the trade see the development of the specialized system of veterinary supplies the country required for its veterinary service. The "animal medicine department" that druggists are being urged to install in their already overcrowded stores would not in itself be a strain on ethics, were the druggist a professional man himself, concurrently informed as to the complexity and public importance of veterinary science in the modern world. The danger of losing the trade of the irate farmer when things go wrong might also be touched upon in coaching the druggist in the "veterinary business." Diseases of animals are not kind.

World Hog Numbers Decline

World hog numbers as of the beginning of 1945 (USDA, June, 1945) are placed at 255 million head, compared with 280 million head in 1944, and 294 million head at the all-time high in 1940. Sharp reductions took place in the enemy-occupied countries soon after 1940, but during the past year the most significant drop was in the hog numbers in the United States and Canada.

Drug Store Sales

A survey of the sales in the various departments of drug stores has indicated that most of these run considerably higher for 1944 than for 1943. Conspicuous in being lower are the departments of "animal and poultry health goods," and "dog and pet medicaments." A confusing and complicated set of phenomena are held responsible for this downward movement: smaller animal populations, a drop in livestock prices, the scarcity of farm help, and absence of a serious epizoötic during 1944. The concerted sales efforts of 1945 have changed this trend, but definite figures are not yet available.

"Sanitation"

In the orthodox directive for the handling of an infectious disease, no word is overworked more than "sanitation" and none is as frequently ignored. As the Special Committee on Brucellosis puts it in its annual report (to be published): "There is a growing tendency to regard the term "sanitation" as abstract and vague rather than specific and concrete." Who will venture to say more about the customary use of sanitation in that many words? Never was there a word less specific in the usual directions of a disease-control measure. "Sanitation" like "therapeutics" is a general term without much meaning unless, as in the case of therapeutics, the details are laid down.

Patrick Henry is credited with saying: "I know of no way of judging the future but by the past." But he also aimed one at us when he said: "I am going to propose that the most useful reading is largely confined to books."

CURRENT LITERATURE

ABSTRACTS

Lamb Parasite Control

When phenothiazine is added to salt at the rate of 10 per cent, and this salt is consumed at the rate of 1.5 Gm. per day for each ewe and her lamb, the internal parasites of the ewe will be reduced to such a degree as to prevent clinical nematode infection in the lambs.

Ewes carrying subclinical numbers of common intestinal parasites will not repay the cost of winter treatment with phenothiazine on ranges where sheep take salt freely during the spring and summer months.—[*Lee Seghetti and Hadleigh Marsh; Control of Intestinal Parasitism in Lambs by Winter Treatment of Ewes, as Compared with the Use of Phenothiazine Salt in Summer, Am. J. Vet. Res., (July, 1945): 159-164.*]

Rabbits' Ailments

The subject of disease in rabbits has gained a degree of prominence in many sections because of the increased interest in rabbit raising during the period of meat rationing. This publication presents clearly and practically the anatomy and physiology of the rabbit in health and in disease. An excellent reference volume for the veterinarian who is occasionally called upon to correct problems in rabbit raising.—[*Rabbits' Ailments, By Major W. P. Blount, R.A.V.C. Paper. 170 pages, 5 by 7 inches. 37 illustrations. "Fur and Feather," Idle, Bradford. Three shillings and sixpence.*]

Bioenergetics and Growth

A scholarly book as the name suggests, it details the energetic efficiencies of such agricultural processes as the production of milk, meat, eggs, and muscular work. The energy cost of maintaining animals and of transforming feed into body tissues presents only one phase of the studies. The relation of speed of transformation to the efficiency of the process, the influence of body size on efficiency of production, and the influence of rate of production on the rate of aging, are others. Illustrations, formulas, graphs, and figures clarify every chapter if not every page. Where the work of other investigators is cited, a complete bibliography is provided page by page. Not a book to answer broad questions quickly, but rather to furnish detailed answers to specific questions. A valuable addition to the library of the veterinarian who plans to continue his studies of metabolism as related to growth and the production of animal foods.—[*Bioenergetics and Growth. By Samuel Brody, Ph.D., Univ. of Missouri. Cloth. 1023 pages. Reinhold Publishing Co., 330 W. 42nd St., New York. Price $8.50.*]

Thiamin Hydrochloride in Acetonemia

Cows exhibiting the usual symptoms of ketosis and reacting to the urine test for acetone were treated by injecting 334 mg. or 501 mg. of thiamin hydrochloride subcutaneously; in all instances, a noticeable response was seen in two hours, with the animal restored to normal in twenty-four hours. Some cases received a single injection, others were repeated in twenty-four hours.

The symptoms of azoturia in a horse were eased following injection of 501 mg. of the drug, intramuscularly. Two sows in which a diagnosis of ketosis had been established responded favorably, as did a barrow with posterior paralysis.—[*L. S. Compton: Thiamin Hydrochloride Therapy, Cornell Vet., (October, 1944):* 285-288.]

Venezuelan Equine Encephalomyelitis

The inactivating power of a 9 per cent solution of thiourea was superior to that of a 25 per cent solution of urea; the most effective from a group of glycols tested was the methyl ester of thioglycolic acid (in 1% solution). Thiourea was able to inactivate the Venezuelan equine encephalomyelitis virus only when added to the diluent previously to the virus; apparently the full impact of a concentration of 9 per cent is needed to inactivate. Once established, the linkage of thiourea-virus is not reversible by further dilution.

The use of thiourea as an inactivating agent is promising in that it has a very low toxicity, its action in saline suspension is equal with that shown in the presence of serum, the union is stable, and the antigenic properties of the virus are completely destroyed.—[*Dr. Francisco Gallia: The "In Vitro" Effect of Thiourea and Other Chemical Compounds on the Venezuelan Equine Encephalomyelitis Virus. Boletin del Instituto de Investigaciones Veterinarias. Vol. 2, No. 7, Caracas, Venezuela.*]

Reduced Milk Yield Following Vaccination

The daily milk yields of 6 cows inoculated with strain 19 *Brucella abortus* vaccine, and of 8 cows inoculated with 2 doses of 45/20 *Br. abortus* vaccine, within an interval of three weeks, are compared with those of 15 control cows.

A loss in milk yield, averaging 24 lb. per cow, followed inoculation. The reduction was most pronounced during the period from two to four days after inoculation; it was negligible nine days after. There was a great variation in the estimated loss among individual cows, varying all the way from 0.3 lb. to 80.0 lb.—[*H. H. Holman and A. McDiarmid: An Observation on Reduction in Milk Yield Following Vaccination of Lactating Cows with Living Vaccines Prepared from Brucella Abortus. Vet. Rec., July 14, 1945.*]

Teat Mucous Membrane Topography

Postmortem examination shows that some teats have a smooth mucous membrane, some are slightly pocketed, and some are markedly pocketed. It was believed that this pocket, or pouch, formation might tend to hold back infected milk at milking time, and so serve as a reservoir for mastitis infections.

Examination of teats from 11 Guernsey and 10 Holstein-Friesian cows showed that in each cow all four teats tended to classify in the same group; that the Guernsey cows had a higher percentage of smooth mucous membranes; and that there was no relationship between the degree of pocketing and the incidence of mastitis infections.—[*J. M. Murphy: Topography of Teat Mucous Membrane and Incidence of Mastitis. Cornell Vet., (January, 1945):* 41-47.]

Chicken Louse Control

DDT, 4 per cent, nicotine (black leaf 155) 0.5 per cent, and sodium fluoride, 33 per cent, each one mixed with pyrophyllite, were compared for the control of *Eomenacanthus stramineus, Nitzsch*, and *Menopon gallinae*, L. on 2-year-old hens infested with at least 100 lice of each species. Six birds were treated with each dust and 6 with pyrophyllite as controls. DDT and nicotine, 6.3 Gm. per bird killed all *E. stramineus* in four hours, but sodium fluoride, 7.8 Gm. per bird, left considerable numbers of *M. gallinae* alive after fifty-two hours. None of either species was alive twenty-eight hours after treatment with DDT. No *E. stramineus* after twenty-eight hours, and no *M. gallinae* after fifty-two hours, were found alive on birds when dosed with sodium fluoride. There was no change in the number of lice in the untreated birds.—[*H. L. Telford: Chicken Louse Control. Abstract, Rev. Applied Entomol., 33, (July, 1945): 109. From Soap, 20, (1944): 113-139.*]

The Lymphatic System of the Domestic Fowl

A summary of a thesis prepared for the degree of master of veterinary science of the University of Liverpool, it discusses the lymphatic system in *Aves*, which the author finds intermediate between the amphibians and the reptiles on the one hand and the mammals on the other. The domestic fowl has very few lymphatic channels compared with the mammals.

Using a colored fluid (Prussian blue) and a needle with a diameter of 0.25 mm., the lymphatics were injected, and then dissected under a dissection microscope in order to follow the branches.—[*J. W. Dransfield, University of Liverpool, England. The Lymphatic System of the Domestic Fowl. Vet. J., August, 1945.*]

[This represents a painstaking, careful piece of work in fundamental research, but it needs to be studied and interpreted for ready use by the general practitioner.—ED.]

Books and Reports

Index of Diagnosis: Canine and Feline

An author who succeeds in writing a large book devoted to but one segment of a delimited whole, and who confines himself mainly to thoughts generated by experience, is apt to add precious material to the field cultivated. In the field of small animal medicine, Hamilton Kirk is that kind of an author—a practitioner for many years, who has done things and has the knack of telling his colleagues what he has done and how he did it. As far back as the 1920's, a prominent American small animal specialist spoke of "that man Kirk of London who knows his cats." Since then and before, the books and current articles of this British writer have become clichè, especially where knowledge of feline medicine was sought. They are etched with the brush of experience, with the slant the practitioner likes and can put to use. They unhorse the querulous critic of scientific standards. In fact, the critic habitually bent on fault finding gets himself all tangled up with the flow of experience and philosophy Kirk seems able to put into prose. Take this one: "It (diagnosis) is usually the one great primary hurdle which the charlatan and quack can seldom jump." Who will step in and say more in that many words? Words that not only enthrone diagnosis but also prove the author's faith in the subject and in his profession.

The book covers the field of diagnosis in small animal medicine. The titles are arranged in alphabetical order and cross indexed for convenience. It is profusely illustrated with drawings, x-ray pictures, and half tones. If some of the drawings lack artistic elegance, they *do* illustrate what the author wants to point out. One admires homely illustrations that serve their purpose more than elegant ones that don't. As the ground covered is highly controversial in some of its details, we commit the text to the mercies of the practitioners.

The book comes to America at an opportune moment. Small animal medicine, once uniquely urban, has become general. As rural and semi-rural groups are rapidly developing that field, the value of such a practicable book on canine and feline diagnosis can not be over-estimated. —[*Index of Diagnosis—Clinical and Radiological—for the Canine and Feline Surgeon. Second Edition. By Hamilton Kirk, M.R.C.V.S. Cloth. 587 pages. Illustrated. The Williams & Wilkins Company, Baltimore. 1945. Price $9.00.*]

Annual Review of Physiology

Here is an anthology proving that medicine advances not on puffy generalities but rather upon the integration of scientific research. It is not an ordinary book because physiology has dovetailed itself so intimately into the ultimate objective of medicine—pharmacology—as to be the veritable aegis of medical progress. Its burden is lifting the other branches of medicine to the level of exact sciences. As a matter of fact, critical reading of this annual review takes the form of a graduate course in modern medicine. If not easy to read in spots, maybe the average reader has not been keeping step. Yet, if the authors *do* seem to explore not-so-familiar ground, here and there, and may in places expose some incomprehensive details, the integer is quickly recognized as an essential trek into the unknowns underlying the mysteries of the biological sciences, including their practical application to the practice of medicine. Every veterinarian will profit by reading and assimilating particularly the chapters on the digestive system, the blood, the physiological aspects of genetics, hormones in reproduction, and pharmacology, to signalize the more directly applicable topics inculcated.

For this column, it would seem pedantic to evaluate its technical competence. The importance of the subject, the ground covered, the editors chosen, and its literary excellence speak for themselves. Moreover, the concepts of physiological processes are changing so rapidly and so strikingly that nothing short of an annual review by capable authors could possibly serve the doctor's purpose. Physiologists will praise the extensive bibliography.—[*Annual Review of Physiology, Vol. VII, 1945. By James Murray Luck, Editor, and Victor E. Hall, Associate Editor, Stanford University. Cloth. 774 pages. Annual Reviews, Inc., Stanford University P. O., California. Price $5.00.*]

Target: Germany

—After Target: Germany, 1943.

Dog Carries His Master's Oxygen Tank

This picture is taken from "Target: Germany," published in 1943 by Simon and Schuster, Inc., Rockefeller Center, New York City. Besides being a fine layman's manual on air corps operations, full of sensational illustrations on the demolition of military installations, it is certainly prophetic of achievements that came to pass during the following two years, when Germany became a well-hit target indeed. It's an eleven by eight book, bound in paper for $1.00, and available in cloth and board for $2.00.

Annual Review of Biochemistry

Biochemistry is the chemistry of living tissue and of the changes which occur during the process of living and growing. This is volume 14 in a series that is kept abreast of the latest information by frequent publication. It is not a repetition or revision of previous issues, but presents a new field of effort by an entirely different staff of contributing reviewers.

The field is too wide to do justice with any short review, because each of the 28 chapters represents a review of many experiments and untold hours of effort. Reading such a volume brings one to a realization of the position man has attained in trying to explain the mystery of life. It stimulates the imagination, and spurs one on to greater effort and more mean-

ingful accomplishments. It answers some of the questions which have plagued the veterinarian and the livestock owner for ages, and it raises others that have previously been submerged because we knew not how to approach them.—[*Annual Review of Biochemistry. By James Murray Luck, Stanford University, Editor and James H. C. Smith, Carnegie Institution of Washington, Associate Editor. Cloth. 856 pages. Annual Reviews, Inc., Stanford University P. O., California. 1945. Price $5.00.*]

[In the August issue of the JOURNAL, the 1940 edition was reviewed. Apparently it was submitted in error, in place of the 1945 edition, which was received later and which is reviewed this month.—ED.]

The Microbiology of Meats

In writing the history of civilization, the author points out, the future historian will have to reckon with the importance of the meat industry to be faithful to his task. Its rise, growth, and aggrandizement have been phenomenal and its refinement outstanding.

By the same token, the spokesman for veterinary medicine is inspired to add that while his part of the industry has hardly put its foot in the door of food hygiene, the ultimate objective is to go in and help to broaden and refine the conventional meat inspection in the manner this book inferentially proposes. The extensively developed scientific laboratories of the meat industry, the first one established in 1890, pursue a far-reaching curriculum which the veterinary profession hopes to copy and to emulate. These are some of the thoughts created by this mine of information on meat hygiene—microbiology of meats if you wish.

Back to reviewing. Clearly, the function of the meat hygienists of the meat packers is not only to augment the art of meat preservation handed down through the centuries, but, more particularly, to establish standards of nutritive value and wholesomeness which only microbiology and chemistry can preserve and disclose. Brine, saltpeter, smoke, vinegar, spices, esters, heat, cold, and drying are age-old agencies in meat preservation, while organic chemistry and bacteriology applied to food production are modern and rapidly advancing branches of knowledge.

This book, the second edition in three years, is timely, arriving as it does when food hygiene is the cynosure of all minds throughout the world and, at the moment, when the veterinary profession is bent on extending its functions more deeply into the field cultivated. The ability of the author and the technical merit of what he writes are taken for granted. Here, the nub is what the integrated material forecasts in the advancement of veterinary medicine; that is to say, broadening the knowledge of food, its preservation, its nutritive properties, and its relation to public health—a field which the veterinary profession should be supervising if attention to its rightful duty is to govern its projects. The professional meat inspector serenely content to just obey regulations written for him can be swiftly replaced by specially trained technicians, derisively called lay inspectors. To stay on the job, the meat inspector is no more invulnerable to replacement than the practitioner with horse-and-buggy qualifications. One can feel the author saying just that. There is reason, therefore, for cheering the coming of this book and to commit it to the consideration of the thoughtful. Not to know, at least, the ground such a title covers is a disadvantage to the doctor of veterinary medicine in any branch and in any company of intellectuals. Although, to certain branches of veterinary practice, some of the text material may be useful only for reference purposes, none of its details fail to come into the province of the meat inspector or officer of the Veterinary Corps.

The introductory chapter is a brief but liberal education on the history of meat inspection from ancient times. That much belongs to general veterinary education. The chapter on food poisoning is "must" material in every branch of the service; the one on drawn, dressed, and eviscerated poultry tells, in the form of checked experimental work, precisely what the poultry industry and consumers are losing by not eviscerating poultry at the time of slaughter—a theme foremost on the agenda of the AVMA. And, pardon the digression, veterinary writers will find this book a fine lesson in grammar. The author doesn't find it necessary to fabricate freakish plurals for generic terms as is commonly done in the veterinary literary output of this particular period, to our own discredit. A book to have and to read!—[*The Microbiology of Meats. By L. B. Jensen. Published by the Garrard Press. Champaign, Ill. Price $4.00.*]

THE NEWS

Veterinary Practice Acts

The 1945 AVMA Directory gives 1893 as the date on which California became the first state to enact a veterinary practice act. A search of issues of the *American Veterinary Review* establishes this as correct.

The Directory lists Maryland as enacting a veterinary practice law in 1895. According to a letter entitled "Regulating Veterinary Practice in Maryland," written on April 19, 1894, by A. W. Clement, secretary, and published in the *American Veterinary Review* (June, 1894: 222), the Directory is one year in error. The letter and a transcript of the law show that the Governor was empowered to appoint a "State Veterinary Medical Board," authorized to examine applicants and issue licenses. Nongraduates were required to qualify before Dec. 1, 1894, and after January, 1895, only diplomas issued by colleges having a three-year course were accepted.

Pennsylvania became the third state having a conventional licensure board under a law which went into effect Sept 1, 1895. A measure enacted by the legislature of 1889 required veterinarians, graduates and nongraduates, to register with the clerks of their respective counties and pay a fee of $25.00; but the law of 1895 provided for appointment by the Governor of a Board of Veterinary Examiners, authorized to examine and license veterinarians. Governor Hastings appointed W. Horace Hoskins, Simon J. J. Harger, J. O. McNeil, Harry Walter, and J. W. Sallade as members of the first board, which elected Harger as president and Hoskins as secretary. The first functional meeting was held late in December, 1895. [See *Am. Vet. Rev.*, (June, 1896): 233-235.] This was the third conventional veterinary licensure board in this country, California (1893) being first and Maryland (1894) second.

During the late 1880's and early 1890's, the New York veterinary medical society, discouraged by defeat of its efforts to induce the legislature to enact a veterinary practice act [*Am. Vet. Rev., 20,* (June, 1892): 331], passed a resolution urging that a national board of veterinary examiners, "The Veterinary Regents of America," be established by Congress. The long and seemingly hopeless fight for a veterinary licensure law ended in 1894, when the legislature, out of a cloudy sky, appropriated $50,000 to found, at Cornell University, a college of veterinary medicine with much higher standards than other states had dared to hope for. Thoughtful judges have regarded this initial grant as the keystone of American veterinary medicine.

Illinois began the work of framing a practice act in 1895, when a group of eastern delegates to the Des Moines meeting, headed by Dr. Hoskins, was entertained and consulted at the then new McKillip Veterinary College. Being keenly concerned in the framing of a practice act for Illinois at that time, I was specially charged by M. H. McKillip to obtain the advice of the secretary of the new Pennsylvania board —Dr. Hoskins. When the Illinois veterinary practice act was enacted by the legislature of 1898-1899, Dr. McKillip was appointed the first president of the Veterinary Examining Board.

Virginia has been credited with passage of a veterinary practice act early in 1894 on the basis of a letter published under the title, "Law Governing the Practice of Veterinary Medicine in Virginia," in the April, 1894, issue of *American Veterinary Review.* In the November issue of the same year (p. 583), Geo. C. Faville, secretary of the state association, reported that the bill had not passed. Such a law was not passed until 1907, thirteen years later.

The object of this fact-finding research is to bring order into the history of American veterinary medicine in respect to the laws which created, set apart, named, and legalized its application in our country. Distinction is to be made between compulsory registration regardless of qualification and licensure on the basis of stated educational status. Only a few of the early cases are here reported, but enacting and amending veterinary practice laws has been on the agenda of the associations without surcease unto this day, and the national examining board idea is still alive.—*L. A. M.*

Can You Help Locate These Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice *via* postcard or letter will be greatly appreciated.

Abinanti, F. R., 4900 13th Ave., Sacramento 17, Calif.

Ament, Roland W., 448 S. Hill, Los Angeles 13, Calif.

Beckcom, E. A. Jr., Station Hosp., Sqdn. H, Dale Mabry Field, Tallahassee, Fla.

Beddow, Ralph N., 3228 Esther St., Honolulu 40, Hawaii.

Bridges, Burlin C., 2nd Army Hdqs., Office of Surgeon, Memphis, Tenn.

Chambers, J. W. Jr., 111 E. Woodin, Dallas, Texas.

Collins, H. R. Jr., Air Corps Base Flying Schl., San Angelo, Texas.

Collinson, R. L., Aurora, Mo.

Covington, N. G., Box 283, Pullman, Wash.

Cox, Erston S., Blountsville, Ala.

Cross, James L., Box 579, Levelland, Texas.

Dale, H. E., Guthrie Center, Iowa.

Davis, Sanford E., 378 E. Elwood, Stayton, Ore.

Devine, K. D., OT B67 MFSS, Carlisle Barracks, Pa.

Eggert, Wm. E. Jr., Veterinary Station Hosp., Camp Hale, Colo.

Elmer, Everett K., D. Co. 2nd Bn., Camp Wheeler, Ga.

Ford, Duane F., 710 E. Mansion St., Marshall, Mich.

Gafford, R. B., Casual Co. 97, APO 11358—c/o PM, New York, N. Y.

Garrett, John P., 5834 Staley Ave., St. Louis 23, Mo.

Gillett, Veronica, c/o G. Brower, 6500 Cochite Rd., Pearock Ct., Albuquerque, N. Mex.

Greer, J. E., Mt. Horeb, Wis.

Greenlee, Allen M., Veterinary Repl. Pool, Chicago Q.M. Depot, Chicago, Ill.

Henderson, W. E., 2900 W. Sixth St., Little Rock, Ark.

Howard, Jack H. Jr., Veterinary Office, Repl. Pool, C.Q.M.D., Chicago, Ill.

Kahl, Bernard D., Hamilton, N. Y.

Koebel, Floyd W., Hdqs. 11th Port, C.B.S., E.T.O., APO 228, New York, N. Y.

McConn, F. J., Fayetteville, Ohio.

McMillan, Thomas, Wichita Falls, Texas.

Miller, M. W., 425 Maryland Ave., St. Louis 8, Mo.

Moffat, G. C., Centuria, Wis.

Morse, C. F., 115—124th Ave., San Francisco, Calif.

Moughon, William C., Box 609, El Campo, Texas.

Poppenhouse, Robert, Box 137, Freeport, Ill.

Propp, Harold, APO 11331—c/o PM, New York, N. Y.

Ricker, H. Glenn Jr., 84 Gainsborough St., Boston, Mass.

Rubenstein, Abraham M., 1251 Euclid Ave., Miami Beach 39, Fla.

Schoen, Edwin A., 1209 Covedale, Cincinnati, Ohio.

Smith, E. J., Greenville AAB, Sqdn. 14—330 Base Unit, Greenville, S. Car.

Stefanick, J. E., Class 44—48B, Box 135 VAAF, Victorville, Calif.

Steinman, F. C., APO 502, 292 Refrig. Co., c/o PM, San Francisco, Calif.

Thompson, Charles F., 603 22nd St., N.W., Washington 7, D. C.

Till, S. B., P. O. Box 705, LaGrange, Ga.

Ward, Benj. F., Station Hosp., AAF, Grand Island, Neb.

Watson, E. J., 2542—33rd Ave., San Francisco, Calif.

Werrin, Nathaniel, Base Veterinarian, 1079th AAF BU, Camp Davis, N. Car.

Williams, J. M., Sqdn. M, 420th AAB Unit, Maxwell Field, Ala.

Wiseman, E. S., APO 430—c/o PM, New York, N. Y.

Wolfe, John, Whittenberg, Wis.

Woodward, Willis D., Pullman, Wash.

Yule, Richard G., Hdqs., 1st U. S. Army Med. Sect., APO 230—c/o PM, New York, N. Y.

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

BAILEY, R. W.
234 Harrison, Trenton, Mich.
D.V.M., Michigan State College, 1943.
Vouchers: G. C. Folger and E. K. Sales.

BONNER, LEON J.
P. O. Box 231, Uniontown, Ala.
D.V.M., Alabama Polytechnic Institute, 1915.
Vouchers: E. E. Williams and T. C. Berry.

BRENES S., RODRIGO
El Centro Sport, San Jose, Costa Rica.
M.V., Universidad Nacional de Mexico, 1944.
Vouchers: C. E. Hayden and H. L. Gilman.

CALLAWAY, HUGH P.
Chicago Quartermaster Depot, 1819 W. Pershing Road, Chicago 9, Ill.
D.V.M., Kansas State College, 1942.
Vouchers: E. S. White and G. G. Hampton.

CARLSON FRED N.
Belle Fourche, S. Dak.
D.V.M., McKillip Veterinary College, 1918.
Vouchers: R. S. Robinson and N. Plank.

DENNIS, T. M.
624 Keith Ave., Anniston, Ala.
D.V.M., Alabama Polytechnic Institute, 1918.
Vouchers: F. A. Clark and B. N. Lauderdale.

DIBBELL, CHARLES B.
7758 East End Ave., Chicago 49, Ill.
D.V.M., Ohio State University, 1938.
Vouchers: J. K. Perry and D. E. Lind.

DONAHUE, WILLIAM F.
P. O. Box 2045, Montgomery, Ala.
D.V.M., Alabama Polytechnic Institute, 1918.
Vouchers: B. N. Lauderdale and E. E. Williams.

FARR, H. L.
1003—16th Ave., Tuscaloosa, Ala.
D.V.M., Alabama Polytechnic Institute, 1917.
Vouchers: B. N. Lauderdale and I. S. McAdory.

FREITAS, E. DEANE
116 Winterville Road, New Bedford, Mass.
V.M.D., University of Pennsylvania, 1942.
Vouchers: L. A. Paquin and J. H. O'Brien.

GAUNTT, I. G.
Jasper, Ala.
D.V.M., Alabama Polytechnic Institute, 1915.
Vouchers: F. A. Clark and I. S. McAdory.

GOODMAN, SIMON J.
7643 S. Euclid Ave., Chicago 49, Ill.
V.M.D., University of Pennsylvania, 1935.
Vouchers: G. G. Hampton and W. D. Carroll.

HARRIMAN, HENRY E.
5117 S. Dorchester Ave., Chiago, Ill.
D.V.M., Kansas State College, 1937.
Vouchers: J. K. Perry and R. E. Storm.

HOFFMAN, SEYMOUR
1338 Broad St., Providence 5, R. I.
D.V.M., Cornell University, 1937.
Vouchers: E. P. Barnhart and J. S. Barber.

ISBELL, W. J. SR.
P. O. Box 261, Langdale, Ala.
D.V.M., Alabama Polytechnic Institute, 1930.
Vouchers: F. A. Clark and B. N. Lauderdale.

KRAUSS, JACK
1842 E. St. George Ave., Linden, N. J.
V.M.D., University of Pennsylvania, 1945.
Vouchers: L. Klotz and A. M. Hillerson.

MEADOWS, M. E.
Box 28, Phenix City, Ala.
D.V.M., Alabama Polytechnic Institute, 1912.
Vouchers: F. A. Clark and B. N. Lauderdale.

MICKLE, ROSS T.
R.D. No. 6, Somerset, Pa.
V.M.D., University of Pennsylvania, 1938.
Vouchers: W. J. Kelber and W. J. Dedrick.

OSBORN, LOWELL A.
Veterinary Food Inspection Detachment, Fort Snelling, Minn.
D.V.M., Iowa State College, 1938.
Vouchers: C. C. Cook and W. A. Anderson.

REID, WILLIAM C.
358 Main St., Fort Erie, Ontario, Can.
B.V.Sc., Ontario Veterinary College, 1938.
Vouchers: H. S. MacDonald and F. E. McClelland.

SIMES, D. E.
6001 E. Superior St., Duluth 4, Minn.
D.V.M., Ohio State University, 1933.
Vouchers: R. Fenstermacher and H. C. H. Kernkamp.

SMITH, WILLIAM C.
Box 111, Louisville, Ala.
D.V.M., Alabama Polytechnic Institute, 1940.
Vouchers: B. N. Lauderdale and E. E. Williams.

SWEENY, HOWARD M.
Maple St., Jeffersonville, Vt.
B.V.Sc., Ontario Veterinary College, 1945.
Vouchers: R. A. McIntosh and L. D. Perry.

WILSON, DON R.
P. O. Box No. 122, Dothan, Ala.
D.V.M., Kansas City Veterinary College, 1916.
Vouchers: B. N. Lauderdale and E. E. Williams.

WITTE, ERNEST J.
350 Lafayette St., New York 12, N. Y.
V.M.D., University of Pennsylvania, 1942.
Vouchers: W. B. Boucher and M. A. Emmerson.

Second Listing

Corwin, Thomas E. Jr., 8701 80th St., Woodhaven, Long Island, New York.

Ducey, F. E., 2321 Bonaventin Drive, Savannah, Ga.

Fries, Jerry E., Swartz Creek, Mich.

Haskell, William H., 852 U. S. Custom House, 610 S. Canal St., Chicago 7, Ill.

Herschenroeder, Francis L., P. O. Box 381, Montgomery, Ala.

Martin, Walter D., P. O. Box 66, Albany, Ga.

Mason, Marcus M., 417 Second St., Ithaca, N. Y.

Moses, Harold E., Harvard Medical School, 25 Shattuck St., Boston, Mass.

Saunders, Daniel H., Box 683, Brownfield, Texas.

Surface, Raymond C., 44 Garden Ave., Belleville, N. J.

Waddell, William H. Jr., 111 E. 15th St. S., Richmond, Va.

Welbourn, William E., 1332 Eastview Ave., Columbus, Ohio.

1945 Graduate Applicants
First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. As asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Cornell University*

ABBOTT, GEORGE W., D.V.M.
6 Old Brook Dr., Worcester, Mass.
Vouchers: H. C. Stephenson and H. J. Milks.

BARTLE, FRANCIS G., D.V.M.
Montgomery, N. Y.
Vouchers: H. C. Stephenson and H. J. Milks.

BOWER, STANTON E., D.V.M.
119 E. South St., Corry, Pa.
Vouchers: H. C. Stephenson and H. J. Milks.

BUSH, NEILL E., D.V.M.
420 Eddy St., Ithaca, N. Y.
Vouchers: H. C. Stephenson and M. E. Miller.

CUMMINGS, HAROLD J., D.V.M.
R.D. No. 1, Averill Park, N. Y.
Vouchers: J. N. Frost and A. G. Danks.

DIMON, MYRON L., D.V.M.
R.F.D. No. 1, Parish, N. Y.
Vouchers: H. C. Stephenson and H. J. Milks.

DUBIN, THEODORE, D.V.M.
336 West End Ave., New York, N. Y.
Vouchers: P. Olafson and H. J. Milks.

FOX, FRANCIS H., D.V.M.
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Vouchers: J. N. Frost and H. C. Stephenson.

KANDL, JOHN F., D.V.M.
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Vouchers: H. H. Dukes and H. C. Stephenson.

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MCBEE, JOHN A., D.V.M.
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Vouchers: S. J. Roberts and M. G. Fincher.

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Vouchers: J. F. Shigley and M. G. Fincher.

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Vouchers: H. C. Stephenson and A. G. Danks.

SMITHCORS, J. FREDERICK, D.V.M.
Elmer, N. J.
Vouchers: P. Olafson and M. E. Miller.

VAN GELDER, RICHARD, D.V.M.
Bath, N. Y.
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WALLACE, CARL N., D.V.M.
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Vouchers: H. C. Stephenson and F. E. Beaver.

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Iowa State University

CHUDOMELKA, THOMAS C., D.V.M.
Clarkson, Neb.
Vouchers: R. Getty and J. E. Weinman.

INNES, JOHN L., D.V.M.
Monona, Iowa.
Vouchers: I. A. Merchant and M. A. Emmerson.

KLOFANDA, ROYAL E., D.V.M.
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LEWIS, R. VAUGHN, D.V.M.
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Vouchers: E. A. Benbrook and M. A. Emmerson.

MCCONE, ALLEN C., D.V.M.
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Vouchers: I. A. Merchant and M. A. Emmerson.

MAGNUSSON, ARTHUR B., D.V.M.
Wyoming Hereford Ranch, Cheyenne, Wyo.

Vouchers: M. A. Emmerson and H. L. Foust.

MOWBRAY, D. C., D.V.M.
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Vouchers: G. R. Fowler and I. A. Merchant.

MURPHY, ARCH J., D.V.M.
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Vouchers: G. R. Fowler and C. H. Covault.

PAULSON, V. CARROLL, D.V.M.
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Vouchers: J. W. Cunkelman and B. J. Killham.

University of Pennsylvania

GORDEUK, STEPHEN JR., V.M.D.
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Vouchers: W. T. S. Thorp and J. F. Shigley.

Texas A. & M. College

CARROLL, THELSTON B., D.V.M.
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THOMPSON, CHARLES A., D.V.M.
Dalhart, Texas.
Vouchers: R. D. Turk and J. P. Delaplane.

Second Listing

Colorado A. & M. College*

Adams, John R. Jr., D.V.M., Rt. No. 3, Marshall, Mo.

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Button, Forrest E., D.V.M., 627 S. Mason, Ft. Collins, Colo.

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Exstrom, Stuart R., D.V.M., Haxtun, Colo.

Farmer, Garland R., D.V.M., 2525 O St., Lincoln, Neb.

Green, Leslie, D.V.M., Shelbyville, Mo.

Grounds, Ottis V. Jr., D.V.M., 115 W. Stone St., Independence, Mo.

Howells, Norman S., D.V.M., 520 L St., Salt Lake City, Utah.

Jones, James G., D.V.M., c/o Sam P. Jones, Tarkio, Mo.

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Nachtrieb, Melvin J., D.V.M., Nathrop, Colo.

Pitt, William L., D.V.M., Dunning, Neb.

Riggenbach, James E., D.V.M., 23 Davis St., Monte Vista, Colo.

Sipe, Mercer L., D.V.M., c/o V. H. Sipe, Boring, Ore.

Shay, Warren J., D.V.M., Kremmling, Colo.

Snow, Roderick L., D.V.M., 6769 Shoup Ave., Canoga Park, Calif.

Starkebaum, Curtis C., D.V.M., Rt. No. 3, Haxtun, Colo.

Taussig, Robert A., D.V.M., Parshall, Colo.

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Iowa State College

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Baird, Charles A., D.V.M., Webster City, Iowa.

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Hauge, Walter B., D.V.M., Lake Mills, Iowa.

Hauser, Robert A., D.V.M., R. R. No. 2, La-Crosse, Wis.

Hedlund, Harold E., D.V.M., Osceola, Neb.

Howe, Gordon W., D.V.M., Evansville, Minn.

Hull, Ray M., D.V.M., Lytton, Iowa.

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McCreedy, Harry D. Jr., D.V.M., R. R. No. 1, Fairfield, Iowa.

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Marek,Durward P., D.V.M., Maquoketa, Iowa.

Marttila, Vernon H., D.V.M., Lake Norden, S. Dak.

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Riley, George E., D.V.M., Elizabethtown, Ky.

Setzepfandt, Alvan O. H. Jr., D.V.M., 1547 S. Delaware Pl., Tulsa, Okla.

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Syverson, Clifford L., D.V.M., Casa Grande, Ariz.

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Verplank, Maurice S., D.V.M., New Richland, Minn.

Wand, John V., D.V.M., Breda, Iowa.

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U. S. GOVERNMENT

Penicillin Regulations.—In accordance with an amendment to the Food, Drug and Cosmetic Act, passed by the Congress July 6, 1945, the Federal Security Administrator has promulgated regulations providing for the standardization, identification, strength, quality, and purity of the drug, insuring the safety and efficacy of penicillin products. Samples of each batch must be submitted to the Administration for approval before offered for distribution.

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The shortage of penicillin in Great Britain was learned in September when a shipment was hurriedly flown to England by airplane for the treatment of an American officer.

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Creighton Heads Poultry Branch.—Mr. Hobart Creighton, Warsaw, Ind., has been named director of the Poultry Branch of the Production and Marketing Administration. This position has been filled, since the branch was established in August, by T. G. Stitts, who is also director of the Dairy Branch.

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Equine Encephalomyelitis.—Reports continue to indicate that this disease will be much less severe this year than in any of the past several years. A total of 307 cases has been reported from California, and 210 from Missouri; while the total for the entire United States is 1,562. Killing frosts in many of the northern areas before appearance of the report of October 3 lead to the belief that the disease will soon be well on the wane.

s/A. W. MILLER,
Chief, Bureau of Animal Industry.

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Redeployment of Soldiers' Pets.—Announcement is made from the Paris office of the *Chicago Tribune* of the Army's plan to redeploy the pet birds, fish, dogs, cats, and fox of enlisted personnel. An over-all charge of $50.00, to be paid by the shipper, will include the dog's house, collar, chain, feed and water pans, and services of a person to accompany the animal.

Food will be supplied by the quartermaster. Medical care will be provided by the port veterinarian.

AMONG THE STATES

California

Seasonal Incidence of Equine Encephalomyelitis.—In reply to a request for information relative to the allegedly high incidence of equine sleeping sickness reported in the Pacific Coast press last summer, Administrator A. R. Carr, Division of Animal Husbandry, writes under date of September 18:

"During the months of July and August, California experienced a decided increase in the number of cases and the spread of the disease. Many reports have already been received for September. The practicing veterinarians have extended excellent coöperation in reporting equine encephalomyelitis cases. Because of the comparatively low incidence of the disease in the past few years, it appears that owners have been letting up on vaccination of their animals, which probably has a bearing on the increase this year. Considerable publicity has occurred in certain sections of the state concerning human cases of encephalitis which has caused quite a number of deaths. The inference in the papers is that encephalomyelitis of horses might be encephalitis in people."

Each month the Department of Agriculture furnishes the State Department of Public Health a tabulation of the cases of equine encephalomyelitis that have been reported, giving their location. The S.D.P.H. requests the information each month for the purpose of attempting to correlate human cases of encephalitis with cases of equine encephalomyelitis."

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Kill Stray Dogs and Cats.—Poundmaster J. M. Talbert of Solano county killed 1,676 dogs last year. He gets up early and works late to get rid of worthless dogs that roam at night. He also bagged 100 wild house cats every month, thus protecting livestock farmers against rabies outbreaks. Roaming dogs and cats spread disease and kill livestock and poultry, and for humane reasons should be disposed of, says *The California Wool Grower*, spokesman of the ovine industry of the Pacific Coast.

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Personal.—John W. Caldwell, D.V.M. (San Fran., '12), of Riverside, answers the veterinary questions for *Western Dairy Journal*, the new Pacific Coast dairy magazine of national character. It is published in Los Angeles, which has come to be an important dairy cattle center, unique in being maintained chiefly by importations of both animals and their feed.

Woman Installed in Veterinary Corps.—First Lieut. Thais de Tienne became the first woman member of the Veterinary Corps on August 25, 1945. A graduate of Washington State College

in the class of 1938, Dr. de Tienne had conducted a small animal hospital in Pasadena before enlisting in the WAC, in September, 1942. Since then, she has been assigned to the Seventh Service Command where she has been in charge of the powdered and frozen egg program, but has been listed as a lieutenant in the WAC until enough "red tape" was unwound to transfer her to the Veterinary Corps in August.

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Veterinary Livestock Inspectors.—The California State Personnel Board announces a need for Veterinary Livestock Inspectors. This is a civil service position open to veterinarians possessing a valid license to practice in the state.

S/STATE PERSONNEL BOARD.

District of Columbia

Atraumatic Suture Link.—A patent has been granted for a device that is preformed with tongue portion looped back upon itself, the body portion having open, outwardly extending wings. When placed between needle and catgut or the like, wings are crimped downward and provide a connecting link substantially no larger than a suture.

Florida

Our First Cattle Empire.—The way historians tell it, Florida had a sizable cattle industry in early colonial days, losing ground only with the development of Texas in later times. The herds were descendants of the first quota of cattle brought to the continent from the West Indies. To prove that the state can economically produce choice beef cattle as did the early settlers, four breeds have been chosen as

subjects for the trial: Aberdeen-Angus, Brahman, Hereford, and Shorthorn. The trial will be carried out with these four breeds on 5,000 acres of improved pasture under the sponsorship of the U. S. Sugar Corporation, with the primary object of proving which breed is best adapted for the purpose.

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State Association.—The annual meeting of the Florida State Veterinary Medical Association was held at the Hotel MacFadden-Deauville, Miami Beach, on October 29-30. The program featured such speakers as Dr. B. T. Simms, Auburn, Ala., newly chosen chief of the Bureau of Animal Industry and president-elect of the AVMA; Sheffel Wright, M. D., Miami; Mr. W. G. Bruce, Bureau of Entomology; and Drs. D. A. Sanders, Gainesville; S. V. Ramsey, Miami; J. L. Hopping, Atlanta, Ga.; and C. H. Covault, Ames, Iowa.

s/V. L. BRUNS, *Secretary.*

Georgia

Georgia Veterinary Medical Association.—The thirty-eighth annual meeting of the Association was held on August 8, at the Griffin Hotel, Griffin. Dr. B. T. Simms, Auburn, Ala., described the operations and services offered by a research laboratory; Dr. G. H. King, Tifton, spoke of research and rural riches; and Mr. Z. A. Massey, Griffin, discussed healthy livestock and poultry. In the afternoon there was a small animal clinic in charge of Dr. J. C. Wright and a large animal clinic in charge of Dr. B. E. Carlisle.

The next day was devoted to open forum discussions: "Small Animal Practice" led by Dr. J. C. Wright; "Large Animal Practice" led by Dr. B. E. Carlisle; "Swine Practice" led by Dr. T. C. Ross; and "The Proposed New Practice Act" led by Dr. J. T. Riddle.

Officers elected were: Dr. C. A. Moody, Newman, *president;* Dr. W. V. Petty, Montezuma, *vice-president;* Dr. J. M. Sutton, Sylvester, *secretary-treasurer.*

s/J. M. SUTTON, *Secretary.*

Illinois

University Conference.—The twenty-sixth Annual Illinois Veterinary Conference was held at the state university Oct. 16, 1945. Avian tuberculosis, brucellosis of cattle and swine, and bovine mastitis were set apart for formal attention. Speakers from out of the state were Dr. W. L. Boyd, of the University of Minnesota; Dr. C. R. Donham, of Purdue University (brucellosis); and Dr. I. A. Merchant of Iowa State College (mastitis). Drs. A. K. Kuttler of the U. S. Bureau of Animal Industry, C. R. Donham, and State Veterinarian C. E. Fidler led the discussion on brucellosis.

The state-wide mastitis project directed by Dr. Robert Graham and staff, of the Department of Animal Pathology and Hygiene, was presented by a panel, with Dr. J. O. Alberts, chairman. This preceded an additional panel on the same subject under the chairmanship of Dr. L. A. Dykstra. Dr. I. A. Merchant spoke on mastitis therapy and Dr. E. E. Sweebe, of Abbott Laboratories, on antibiotics. Dr. George B. Senior, of the State Department of Agriculture, showed a film on avian tuberculosis. Dr. Jesse Sampson presided in the morning and Dr. C. C. Morrill in the afternoon. The AVMA was represented by Associate Editor R. C. Klussendorf who took part in the practitioners' panel on bovine mastitis.

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Twenty-Ninth Portable Surgical Hospital, U. S. Army.—The program of an entertainment held in Okinawa, Sept. 3, 1945, by this Medical Corps unit is of particular interest here because one of its personnel is Technician Fred L. (Buddy) Andersen, whose job in the circulation department of the AVMA office awaits his return. Buddy has been in the service since almost the beginning of the war and expects to return early next year. Here is the itinerary of this portable surgery: Palm Springs, Calif.; USS President Johnson; Australia; Milne Bay, New Guinea; Cape Gloucester, N.G.; Finschaffen, N.G.; Aitape, N.G.; Humbolt Bay, Hollandia, Dutch N.G.; Tacloban, Leyte, P.I.; Guiuan, Samar, P.I.; Cadmon Hill Beach, P.I., and Okinawa, Ryukus, Japan. The roster shows that Fred is 1 of 13 original members still with the outfit.

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Northern Illinois Association.—Members of the Northern Illinois Veterinary Medical Association met on October 24, at the Hotel Faust, Rockford, for the following program: "Penicillin in Veterinary Medicine," by L. E. Harris, Lincoln, Neb.; "Bovine Surgery," by Dr. Geo. Fowler, Ames, Ia.; "The Use of Distemperoid Virus," by Dr. R. G. Green, Minneapolis, Minn.; and "New Brucellosis Laws," by Drs. C. E. Fidler and A. F. Kuttler, Springfield. Dr. J. D. Ray, Omaha, Neb., acted as toastmaster for the banquet, with Senator Simon E. Lantz, chairman of the Illinois Senate Agricultural Committee, delivering the address.

s/P. T. GAMBREL, *Secretary.*

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Chicago Association.—Capt. E. E. Slatter, V. C., held the members' close attention while he recounted some of the experiences of his three years of service, much of it in China. The problems of training men who have no knowledge of, or previous contact with, animals in the intricacies of horseshoeing, packing a saddle, and handling pack animals to good advantage were considerable without getting into the treatment of saddle sores and battle injuries.

For his work Captain Slatter was awarded the Chinese Grand Star of Honor, but his experiences have been such that he is looking forward to his return to general practice at Danville.

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Illinois-Indiana Veterinary Association.—Twin Lakes Park, Paris, was the site of the regular fall meeting and chicken fry on September 21, promptly at noon. Drs. A. K. Kuttler and C. E. Fidler, both of Springfield, discussed recent developments and regulations concerning brucellosis control in Illinois. Uses and doses of penicillin were also discussed.

s/H. F. PAGE, *Secretary.*

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Chicago Veterinary Corps Officers.—Major C. H. Failing presided at the meeting on September 26, which was in the nature of a round-table discussion of diseases and problems pertaining to general practice. Participating were Captains John K. Perry, Hugh Lightbody, Henry E. Harriman, Raymond Hander, Earl M. Sprunger, Glen G. Hampton, and 1st Lt. Harlan Wiggins.

s/MAJOR WM. C. SCHOFIELD, V. C., *Secretary.*

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New Type of Convention Exhibits.—The American Meat Institute introduced a new type of exhibit for its annual convention held at the Stevens Hotel in Chicago, October 29-30. The customary exhibit booths were replaced by "Ad-Exhibits," providing space for printed matter describing the firms' complete lines. The new pattern was pronounced a more effective type of demonstration than exhibits of products. The literary material exhibited can be widely distributed after the convention. So to speak, the "Ad-Exhibit" can be used to carry out a veritable, post-convention extension service that will carry a firm's up-to-date message far beyond the few who attended the convention.

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Personal.—Lt. Paul Casey, Jr., of the Army Air Corps, son of Mr. Paul Casey, president of Vitamineral Products Company, of Peoria, spent a furlough at his home in that city in July after having been released as a prisoner of war in Germany. Paul is a grandson of the late Dr. A. T. Peters, founder of the Vitamineral Company. He is now (September) on duty in Florida.

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Personal.—Eugene B. Ingmand (I.S.C., '34), at one time assistant executive secretary of the AVMA, earned three battle stars while on duty with the Third Army in France and is now Major E. B. Ingmand, inspector of food supplies arriving at the base section ports. When called to active duty in 1942, he was a veterinary reserve officer with the rank of captain and was employed by the Jensen-Salsbery Laboratories in Kansas City.

Indiana

Purdue Conference.—Purdue held its thirty-third annual short course for veterinarians, Oct. 11-12, 1945, at the Memorial Union and the Veterinary Building. The curriculum touched the whole field of farm animals. Special subjects were bovine brucellosis (listed as Bang's disease), penicillin, and mastitis. Drs. L. P. Doyle and C. R. Donham presided at the two technical sessions. Dr. R. A. Hendershott directed a panel discussion on general practice. The clinic was in charge of Dr. J. F. Bullard with Drs. J. P. Hutton, W. T. Krill, R. A. Hendershott, and A. E. Erickson conducting the section on large animals; Dr. B. H. Edgington responsible for the swine section; and Drs. F. E. Hull, F. C. Tucker, and B. T. Simms in charge of the sheep and poultry section. Other contributions were:

Dr. L. E. Burney, state health commissioner, Indianapolis: "The Veterinarian and Public Health."

Dr. G. E. Botkin: "Bang's Disease Control in Indiana."

Dr. B. H. Edgington, Ohio Agricultural Experiment Station: "Diseases of Hogs."

Dr. A. E. Erickson, Charlotte, Mich.: "Problems of General Practice."

Dr. R. A. Hendershott, chief of the New Jersey Bureau of Animal Industry: "Mastitis Control."

Dr. F. E. Hull, University of Kentucky: "Diseases of Sheep."

Dr. W. R. Krill, The Ohio State University: "Penicillin in Veterinary Practice."

Dr. B. T. Simms, Auburn, Ala., president-elect of the AVMA: "Diseases of Calves." (Illustrated.)

State Veterinarian G. E. Botkin presided over a dinner session at which Drs. B. T. Simms and J. G. Hardenbergh spoke briefly.

Iowa

Midwest Small Animal Association.—The program committee selected November 1 as the date, and Hotel Burlington, in Burlington, as the place of the meeting. Dr. Carl F. Schlotthauer, Rochester, Minn., discussed encepalitis, hysteria, and the distemper complex; Dr. L. Meyer Jones, Ames, presented the new information on sulfonamides, penicillin, and DDT; Dr. Jack Dinsmore, Evanston, Ill., featured newer methods in surgery and diagnosis; and Dr. Jack Ray, Omaha, Neb., presented some experiences with fitty dogs.

s/WAYNE RISER, *Secretary.*

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Junior AVMA Elections.—Officers elected at a meeting of the student chapter of Iowa State

College, Ames, on August 9, 1945, are: John Kerr, *president;* Charles Clark, *vice-president;* Richard Howard, *secretary;* John Patterson, *treasurer;* Henry Stock, *critic;* and James Magilton, *sergeant at arms.* L L L

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The Eastern Iowa Association.—The thirty-second annual meeting at Cedar Rapids, October 9 and 10, appears to have topped all former meetings of this biggest-of-all local veterinary-medical societies. The attendance was the largest of recent years, if not for all time. The officers elected were J. H. Krichel, Keokuk, *president;* T. A. Galoon, Dyersville, *vice-president;* C. C. Graham, Wellsburg, *secretary;* A. R. Menary, Cedar Rapids, *treasurer;* C. B. Strain, Dunkerton, *board member.*

Dr. (Mrs.) Richard Rann, née Betty J. Wright (M.S.C., '43), of Perry Mich., the only woman veterinarian graduated from Michigan State College, who is engaged in general practice.

Conforming to its refreshing policy of collaborating with the livestock farmers of the region, the program comprised the major disease problems of cattle, swine, and poultry. Out-of-state specialists were Drs. A. H. Quin and J. L. Wells, of Kansas City; Drs. J. D. Ray and Frank Breed, of Nebraska; Dr. B. S. Pomeroy, of Minnesota; Drs. D. M. Campbell and L. A. Merillat, of Illinois; and the never-to-be forgotten Dr. Betty J. Wright, celebrated woman veterinarian of Perry, Mich., who spoke on "My Experiences as a Woman Veterinarian in General Practice," to the delight and surprise (and what a surprise!) of an admiring audience of horny-handed veterinarians and newsmen, when told how a slender girl of 26, very, very easy to look at, manages the trickiest fauna of the farm. Never again shall it be said that the strength of a giant and the endurance of an athlete are indispensable attributes of the general practitioner. Betty (beg pardon), the JOURNAL salutes you. The romance? Dr. Wright is now Mrs. Richard Rann, having married Major Richard Rann of the U. S. Army Air Corps, who is now a student of veterinary medicine at Michigan State College. To the Major we extend greetings.

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Southwestern Association.—Meeting at Hotel Chieftain, Council Bluffs, on Tuesday, October 2, the following scientific program was presented: "Swine Retentions Due to Avian Tuberculosis" by Dr. W. T. Spencer, Lincoln, Neb., with discussion by Dr. F. A. Boise, Logan; "Beef Cattle Diseases" by **Dr. John Dewar,** Cherokee; "Appetizers" by Dr. Walter Nelson, Herman, Neb.; "Remarks by Regulatory Officials" by Drs. J. A. Barger and C. C. Franks, both of Des Moines; "Penicillin" by Dr. A. H. Quin, Kansas City, Mo.; "Swine Diseases" by Dr. A. H. Blair, Irwin, with discussion by Drs. G. L. Schaefer and H. G. Smith of Tekamah, Neb., and Exira, Iowa, respectively.

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Clay Pigeon Poisoning in Swine.—To the poisonings of swine caused by eating clay pigeon particles, add the two outbreaks in eastern Iowa reported in September by the Advisory Committee of the Eastern Iowa Veterinary Medical Association. The toxic properties of the tarry mixture from which the discs used for target shooting are made are no longer regarded as illusionary.

The committee also reported rabies in dogs, swine, and cattle.

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Son of Veterinarian Killed in Action.—Marine Pvt. Richard Fenton, 18, son of Dr. and Mrs. V. G. Fenton, of Stanwood, was killed in action during the Okinawa campaign in August. He was born March 21, 1926, and is the brother of Sgt. Vernon Fenton now (September) in France.

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The Leading Horse State.—The horse population lost 405,000 head last year, continuing on the downgrade which began in 1918. The drop was from 9,302,000 in 1944 to 8,897,000 in 1945. The number is the lowest since 1884. Iowa with 581,000 remains the leading horse state, notwithstanding that the loss for the whole country was in farm horses.

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Upper Iowa Association.—All officers of the Upper Iowa Veterinary Association were re-elected at Clear Lake on July 17. Dr. L. M. Forland, Northwood, *president;* Dr. H. A. Jansen, Thornton, *vice-president;* and Dr. R. J. Ryan, Lake Mills, *secretary-treasurer.* A picnic dinner and current practice topics completed the program.

Kansas

Enrollment Figures.—The fall semester opened at Kansas State College with the following numbers of students matriculating: seniors 70, juniors 43, sophomores 15, freshmen 55. This class entered on the normal or decelerated schedule.

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Economics of Tuberculosis Eradication.—Secretary Will J. Miller, of the State Livestock Sanitary Commission, tells the readers of the *Kansas Stockman* that twenty years ago the condemnation of bovine animals slaughtered was 1 in 80 compared with 1 in 7,300 at the present time. Had the proportion of tuberculous cattle at the three markets, Buffalo, New York City, and Boston, been as great last year as it was twenty years ago, there would have been a loss to our food supply of more than 2,000,000 lb. of carcass beef.

Louisiana

Veterinary Corps Officers Return.—Veterinarians who have returned from service and are again located in the state are: Drs. W. S. Hornsby, Lafayette; George O. Thomas, Ringgold; George H. Broussard, New Iberia; and W. T. Oglesby, Baton Rouge.

s/A. H. GROTH.

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"Bill's" Coming Back.—Dr. W. T. Oglesby, Louisiana State University, Baton Rouge, known better at the AVMA office as Bill Oglesby, generally with the Oglesby left out, is getting reconverted to just a professor of veterinary science after filling the left sleeve of a Captain, V.C., A.U.S. uniform with service stripes, in a medical laboratory down in Miami and parts south. "I ought to be back in two to three weeks," says a cheery letter of September 28.

Maine

State Association.—The October meeting of the Maine Veterinary Medical Association was presented in the form of a clinic at the new hospital of Dr. E. C. Moore, Lewiston. There was also a dinner, a business meeting, and the showing of three films: "Sentinels of Milk," "War Dog Training," and "Milk Secretion and Milking."

Plans are under way for a postgraduate course in surgery to be conducted by Dr. James Farquharson, Fort Collins, Colo., in conjunction with a showing of many of his excellent films.

Massachusetts

Reorganization Plans.—Dr. E. A. Woelffer, of Boston, is chairman of a committee of the state association which will make recommendations regarding programs to be presented, activities in addition to regular meetings, improving public relations, watching new legislation, and, in general, building up a larger membership of wider interest and influence.

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State Association.—The Massachusetts Veterinary Medical Association met at Hotel Kimball, Springfield, on September 26, with dinner at 6 p.m. The program consisted of a sound film, "The Science of Milk Production," produced by W. E. Peterson for the Purina Company, and a film produced by Dr. F. M. Austin, of Belchertown, which he calls "A Few Surgical Operations in Large and Small Animals."

s/H. W. JAKEMAN, *Secretary.*

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State Association.—The regular meeting of the Massachusetts Veterinary Medical Association, held at the Hotel Vendome, Boston, on October 24, took the form of a round-table discussion of interesting cases and topics which concern the members.

s/H. W. JAKEMAN, *Secretary.*

Michigan

Stafseth Leaves for China.—Word has been received that Dr. H. J. Stafseth has left his post at Michigan State College, East Lansing, to begin the work of organizing a livestock disease control program under a veterinary bureau established for that purpose. Dr. Stafseth left the United States on October 12, aboard the Globester, and will organize his new work under UNRRA during a year's leave of absence. He is still in need of assistants, and veterinarians interested in joining the staff are urged to contact the Director, Agricultural Division, United Nations Relief and Rehabilitation Administration, 1344 Connecticut Ave., N. W., Washington 25, D. C.

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Personal.—Dr. Charles H. Cunningham, formerly located at the Agricultural Experiment Station, Rhode Island State College, has accepted an appointment in the Department of Bacteriology and Public Health, School of Veterinary Medicine, Michigan State College, at East Lansing. His new duties began October 1.

Minnesota

Annual Veterinary Short Course.—October 31 and November 1 are the dates selected for the 1945 course. Dr. James Farquharson, Fort Collins, Colo., will demonstrate surgical techniques by presenting some of his excellent films, with his running comment. Dr. E. A. Benbrook, Ames, Iowa, will discuss nutrition in relation to parasitism; Prof. T. S. Hamilton, Urbana, Ill., will speak on vitamins in livestock feeding; Mr. Carl H. Schroeder, Detroit, will tell about the trends in poultry nutrition; and Dr. W. D. Daugherty, Sterling, Ill., has chosen the subject, "Mastitis and the Practitioner."

Members of the staff will discuss the following subjects: Dr. H. C. H. Kernkamp: "Moldy Corn and Swine Health"; Dr. M. H. Roepke: "Developments in Chemotherapy"; and Drs. F. J. Weirether and D. E. Jasper: "Effects of Infusion of Penicillin in the Bovine Mammary Gland."

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Tribute to a Veterinarian.—Dr. A. A. Feist, St. Paul, recently had a glowing tribute from M. M. Joyce, Judge of District Court, Minneapolis, for the consideration shown a family pet, "Jiggs," and for the gentleness, kindness, and understanding with which he handled this dog during life and in his final period of blindness. The case was called to our attention by James Nankivell, executive agent for the Minnesota Society for Prevention of Cruelty, and shows plainly what has been accomplished in his community by one member of the AVMA.

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Leptospirosis (Weil's Disease).—Despite the apparent increase in the incidence of leptospirosis in the United States, there have been no human cases reported in Minnesota [Stavitsky and Green, *Minnesota Medicine*, July, 1945. Abstr. J. Am. M. A., (Sept. 22, 1945): 308], although evidence of the infection has been found in 4 rats and 3 dogs. The belief that the disease does not exist in the state may spring from the fact that *Leptospira icterohemorrhagiae* does not grow on ordinary bacteriologic mediums, nor is it stained by the more commonly used stains. Its presence would, therefore, be missed in the 50 per cent of cases which may not exhibit jaundice or any of the classic symptoms of leptospirosis.

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Wins College Award.—Dr. Herbert M. Fisch, Jr., Austin, has been awarded the George Judisch prize, covering the annual dues to the AVMA for four years. This award goes to the graduate at Iowa State College, who completes his course with the highest scholastic average for his class. Dr. Fisch is the son of Dr. and Mrs. H. M. Fisch.

Missouri

Kansas City Association.—The September meeting of the Kansas City Veterinary Medical Association featured two color and sound films, one on vesicular diseases of animals, produced by Dr. H. W. Schoening, Pathological Division, USBAI, and one on the administration of phenothiazine to farm and ranch animals, sponsored by E. I. DuPont de Nemours & Co. Dr. L. H. Beebe, Warrensburg, led the discussion on the latter. The session was held at Hotel Continental, September 18, at 8 p.m.

s/GAIL B. SMITH, *Secretary.*

Kansas City Association.—"Diseases of Animals Affecting the Central Nervous System" (illustrated), by Professor H. E. Biester, Iowa State College, was the leading contribution of the monthly meeting held at Hotel Continental, October 16.

s/GAIL B. SMITH, *Secretary.*

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Record Calf-Producing Cow.—When Black Ida 6th, 332777, Aberdeen-Angus cow owned by Miss Vonda Cunningham, of Pollock, calved on April 20, 1945, it was her twenty-third successful parturition. Born March 25, 1920, she gave birth to her first calf April 5, 1923, and then dropped a living calf every year for twenty-three years thereafter. The record is 15 heifer calves and 8 bull calves, all creditable animals. The cause and date of her death are not given. —*From The Aberdeen-Angus Journal, 27, (Sept. 1945): 51.*

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Cobalt Deficiency.—Dr. A. H. Quin, of Kansas City, recently entertained Dr. C. S. M. Hopkirk, who was on his way from his home in New Zealand to serve on the allied commission for livestock rehabilitation of devastated areas in Europe. Their conversation, which is reported in the *Kansas City Daily Drovers Telegram* (Sept. 21, 1945), brought out the fact that cobalt deficiency has been an important problem in New Zealand as it has been in several areas of the United States. It was found that when cobalt is supplied with salt it takes only about 2 oz. in each 100 lb. of salt to correct the deficiency.

Nebraska

Firecrackers in Taking Wildlife Census.—The Game, Forestation and Parks Commission use a ten-cent aërial bomb in scaring up and counting pheasants, in the effort to establish more exact statistics on that part of the wildlife population. The bombs are exploded at five-mile intervals an hour after sunrise. Observations on the effect of thunder, blasting, and shotgun discharges led to the use of this plan of pheasant counting.

New Hampshire

Veterinary Practitioners' Round Table.—The August meeting of this group, which is made up of veterinarians from Maine and New Hampshire, was held at the home of Dr. Charles Place, Dover, on August 18. Subjects discussed were: encephalitis, summer eczema, distemper inoculation, treatment of burned-out cows, fractures, and castrations in cats.

s/S. D. MERRILL.

New York

New York City Association.—The Veterinary Medical Association of New York City met at

the Hotel New Yorker on Wednesday, October 3, to hear two speakers: Dr. C. L. Blakely, of Angell Memorial Hospital, Boston, Mass., on "Diaphragmatic Hernia in Dogs," and Dr. D. W. Baker, of Cornell University, Ithaca, on "Dog Ticks." Dr. Chas. E. Fanslau acted as program chairman.

s/C. R. SCHROEDER, *Secretary.*

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Morrison Retires.—Prof. Frank B. Morrison, head of the animal husbandry department at Cornell since 1927, will relinquish all administrative duties at his own request, and devote his entire time to research and the teaching of graduate students. Prof. K. L. Turk will become head of the department on October 1, 1945.

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Recollections and Reflections.—Dr. W. L. Williams has written of sixty-five years in the veterinary profession in *Cornell Veterinarian* for April and July, 1945. In the latter item he says: "Under the practice laws a man cannot be a successful charlatan without having a D.V.M., and his success as a quack may be boosted by the addition of a Ph.D. While the educational program leading to the D.V.M. degree is absolutely essential to the competent veterinarian who would render proper service to his community and to the state, it is also a highly valuable screen for the quack, enabling him more readily to evade the spirit of the practice laws."

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Winthrop Expands Veterinary Program.—Dr. Chas. E. Fanslau reports that the veterinary division of Winthrop Chemical Co., of which he is director, is being expanded. The division will continue to sell pharmaceutical products exclusively to graduate veterinarians.

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Veterinary Officers Organize.—A group of 58 Veterinary Corps officers from the New York City area met on September 11 to hear Dr. C. E. DeCamp, Scarsdale, discuss problems in small animal practice.

The group met again on October 9, at the Pennsylvania Hotel, to hear Dr. E. R. Cushing, Plainfield, N. J., discuss general practice problems.

s/CAPT. A. K. TICE, V.C., *Secretary.*

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Fertility of the Aged.—Dr. W. S. Gleason, of Niagara Falls, is quoted in *Dog Research Progress* (June, 1945) as having reported a

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New York State Veterinary College

CORNELL UNIVERSITY

Ithaca, New York

Class of October, 1945

First row (left to right)—F. H. Fox, R. F. Vetter, W. E. Mellon, Prof. A. Zeissig, Prof. C. E. Hayden, Prof. H. J. Milks, Dean M. F. Fincher, Prof. A. G. Danks, Prof. Peter Olafson, J. F. Smithcors, N. E. Bush.

Second row (left to right)—S. E. Bower, G. A. Goode, R. R. Marshak, S. B. Seader, J. D. Goebel, M. L. Dimon, J. F. Kandl, A. D. MacCallum, R. Van Gelder, F. G. Bartle, C. N. Wallace, G. W. Abbott.

Third row (left to right)—C. Hartenstein, R. F. Shigley, R. E. Horton, J. A. McBee, G. H. Herlitz, H. N. Smith, W. M. Klein, M. F. Watts, J. D. Wheat, H. J. Cummings, M. Ross, R. L. Palmiter, T. Dubin.

Fox Terrier bitch, 17 years old, that gave birth to a litter of two pups, a male and a female.

Ohio

"Keep 'em Healthy Series."—Dr. J. G. Hardenbergh, Chicago, was the guest speaker on this program over station WLW, Cincinnati, on September 25. His subject was "American Veterinarians All Around the World in World War II and Afterward."

s/A. G. MADDEN, JR.

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Veterinarian on the Air.—Dr. E. V. Hover, Lima, was the guest speaker on station WLW's "Keep 'em Healthy Series," of "Everybody's Farm Hour," on October 13, his subject being "Parasites and Mange in Hogs."

s/A. G. MADDEN, JR.

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Sheep Dog Registration.—D. S. Bell, of Wooster, secretary-treasurer of the North American Sheep Dog Society, writes an article in America's foremost sheep magazine — *Sheep Breeder* — warning the American buyer of Working Collies (Sheep Dog or Border Collie) not to import a dog that has not been registered in the stud book of the International Sheep Dog Society, Mr. James Allan Reid, Airdrie, Scotland, secretary. Dogs registered in the International Sheep Dog Society's stud

—*Sheep Breeder*

Working Collie or Border Collie, a dog breed of growing popularity on American farms.

book may be registered by the North American society without charge, but importers of dogs eligible for registration but not possessing valid credentials are forever banned from registration, as a penalty for the neglect. Purity of the breed has been assured through the years by the strict regulations of the Stud Book Committee, which include public working trials in addition to pedigree and satisfactory progeny record.

Oklahoma

Executive Director.—Dr. Herman Farley (K.S.C., '26), formerly of Wichita, Kan., has been named executive director of the newly established Veterinary Research Institute at the Oklahoma A. & M. College, Stillwater. The first problem to be studied is anaplasmosis, and this project is supported by a special grant of $100,000 from the last legislature. Efforts to develop a successful immunizing agent will be intensified. It is estimated that Oklahoma cattlemen lose a quarter of a million dollars an-

Dr. Herman Farley

nually from this disease, and it is at least as serious in other states.

Oregon

Personal.—Dr. H. F. Dotson, K.C.V.C., '14, is now at 502 West B. Street, Grant's Pass, where he is in general practice. He was formerly located in the Livestock Exchange Bldg., Wichita, Kan.

Tennessee

Veterinary Practice Act Strengthened.—Section 7067, of the official code, which relates to the practice of veterinary medicine in the state, was amended a few months ago so that it is now discretionary, instead of mandatory, for the state board of veterinary examiners to grant certificates of license, without examination, to graduates of regularly organized and recognized veterinary colleges.

Texas

Acting Chief Veterinarian.—Dr. J. L. Adrian, Amarillo, is acting as chief veterinarian until appointment can be made to fill the vacancy in

the Livestock Sanitary Commission created by the resignation of Dr. E. A. Grist.

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The Horse's Mouth.—Dr. E. A. Grist, Fort Worth, used this as a title for an item appearing in *The Cattleman* for September, 1945. He suggested paraphrasing the slogan "See your dentist twice a year" to "Have your horse's mouth and teeth examined by your veterinarian once each year." He discussed many of the common symptoms of faulty mastication which can be corrected by the veterinarian.

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Quarter Horse Race Meet.—A noteworthy annual event of the equine circle is the American Quarter Horse Race Meet held at Eagle Pass in October. It is one of those events at

Dr. Verne A. Scott (K.C.V.C., '18)

which "a good time was had by all" and which is well patronized by the local people and substantial ranchers from hither and yon. A pictorial article on this hallowed event by Frank Reeves in the Seventeenth Annual Horse issue of *The Cattleman* contains the picture of none other than Dr. Verne A. Scott, popular head of veterinary science at John Tarkington Agricultural College, Stephenville, who was judge of the show in 1944. The Quarter Horse is not a toy in ranching.

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Sharp and Dohme, Inc., Glenolden, Pa., has made a grant for the study of sulfa drugs at the Galveston branch of the University of Texas. The grant will be administered in the department of pediatrics by Prof. A. E. Hansen, with the coöperation of the department of experimental surgery.

Virginia

New Source of Artery Grafts.—Copley and Stefko, School of Medicine, University of Virginia (*Science*, Sept. 28, 1945), demonstrated the use of vein grafts from young chickens and turkeys to replace arteries in man and animals. These vein grafts were transplanted to bridge defects in the arteries of dogs. Jugular veins, ligated and taken from the anesthetized fowl and transplanted to replace segments of the femoral and carotid arteries of dogs anesthetized with nembutal, remained patent in sufficient instances to refute the contention that heterotransplants cannot be expected to survive.

Washington

Is the Pigeon Nuisance Solved?—Mr. Lee Klos, electronic engineer, is reported to have invented a whistle of high sound frequency that will frighten pigeons but which cannot be heard by the human ear. It has been planned to install such a whistle on the courthouse at Spokane. In no American city will the value of this supersonic gadget be discounted.

Wisconsin

Southeastern Association.—Meeting at Columbus on October 10, the members of the Southeastern Wisconsin Veterinary Medical Association held a question and answer program on practice problems and elected the following officers for 1946: Dr. J. Robert Curtis, Portage, *president;* Dr. J. J. Robert, Columbus, *vice president;* Dr. Geo. Gettleman, Hartford, *treasurer;* and Dr. J. O. McCoy, Reeseville, *secretary.*

s/J. O. McCoy, *Secretary.*

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Dr. Morgan Promoted.—Dr. Banner Bill Morgan has been promoted from an assistant professor to an associate professor and parasitologist in the Department of Veterinary Science of the University of Wisconsin.—*Science, Sept. 28, 1945.*

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Personal.—Dr. G. R. Hartsough (M.S.C., '40) has left the Wisconsin State Game and Fur Farm at Poynette to join the Associated Fur Farms at New Holstein.

West Virginia

State Association.—The West Virginia Veterinary Medical Association held its annual meeting on October 9, 1945, at the Kanawha Hotel in Charleston. Mr. D. Boone Dawson, mayor of Charleston, delivered an address of welcome and Hon. J. B. McLaughlin, commissioner of agriculture, outlined the needs of veterinary service in West Virginia. Dr. A. F. Schalk, Columbus, Ohio, discussed preventive veterinary medicine, and there were case reports and questions on various diseases affecting livestock and poultry. Dr. V. J. W. Scott addressed the banquet group at the Daniel Boone Hotel.

Dr. J. J. Cranwell, Fairmont, was elected *president*, the other officers being Drs. V. H.

Miller, Charleston, *vice president*, and R. M. Johnson, Charleston, *secretary-treasurer*.

s/R. M. JOHNSON, *Secretary*.

Foreign

Australia

Free from Rabies.—Director R. N. Wardle, Division of Veterinary Hygiene, Canberra, has written to correct a statement made in the May JOURNAL to the effect that Great Britain is the only rabies-free country in the world. Australia and New Zealand are both free from this disease, also, and are taking vigorous steps to remain free.

The following serious animal diseases are also unknown in Australia: encephalomyelitis, foot-and-mouth disease, fowl pest, glanders, infectious anemia, Malta fever, Newcastle disease, rinderpest, sheep scab, hog cholera (swine fever), trichinosis, trypanosomiasis, and tularemia.

Cuba

Cattle Population Decreased.—During the last four years of the war, the Cuban cattle population dropped from 5,335,000 to 3,778,000 head. The cause of the decline was three years of drought and an increased demand for meat. Cuban neat cattle are mainly crosses of native and Brahman stock, slaughtered directly from pastures. Fat meat is not popular. The small amount of corn raised is fed to hogs or used for the human dietary.

France

Experimentation on Man.—Christian Charpy (*J. Am. M. A.*, Sept. 1, 1945) presented authentic documents to the *Académie de médecine* which fell into the hands of the French police during the invasion of Germany. These documents establish beyond doubt that German scientists, not executioners, experimented on prisoners of war. Fifty-four histologic specimens of testes and epididymides from 7 persons were found in the laboratory of Professor Hirth of Strasbourg. The specimens were identified as lesions of these organs made by intraparenchymatous injections of toxic substances. The injections were made eight to ten days before death, and the object was probably an attempt to perfect a means of sterilizing men. Some of the specimens were from children 13 to 15 years old. The *Académie* decided to break off all scientific relations with German scientists.

Great Britain

NVMA Meets.—When the National Veterinary Medical Association of Great Britain and Ireland met in London on September 25-28, a cablegram was sent by Dr. Farquharson, president of the AVMA, which read: "Heartiest greetings to officers and members assembled for your annual meeting and congratulations to all veterinarians of Great Britain and Ireland for splendid wartime achievements. May victory and lasting peace bring our associations ever more in harmony to achieve our common goal."

The following reply was received: "The National Veterinary Medical Association of Great Britain and Ireland, at its first postwar congress, greatly appreciates cordial sentiments expressed by American Veterinary Medical Association. British veterinarians heartily reciprocate expressed hopes that peace will cement friendship; collaboration and coöperation with USA confrères already enhanced during stay of many American veterinarians in Britain during recent war years."

s/W. C. MILLER, *President*.

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Foot-and-Mouth Disease.—Lord Iveagh, of Pyrford Court, Woking, Surry, lost his herd of 200 head of purebred Guernsey cattle in a recent outbreak which was severe in the areas in which it was localized.

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Public Health Fellowships.—The Rockefeller Foundation is offering a small number of two-year fellowships, valued between £450 and £850 per year, to medical men and women of British birth, who wish to take up public health as a career. Work abroad for a part of the tenure is required, following a qualifying course for the DPH in the London School of Hygiene.

Hawaii

Personal.—Dr. E. C. Auchter, former administrator of research of the United States Department of Agriculture, has been promoted from his former status, as director, to the office of president of the Pineapple Research Institute of Hawaii. Dr. Auchter came to Hawaii in February, directly after resigning from the USDA.

Okinawa

Entomologist Killed in Action.—John D. Maple, discoverer of important factors in mosquito control, was among those killed in action on Okinawa in June. Maple was formerly with the Bureau of Entomology, USDA, and was conducting original work in the use of DDT on mosquito larvae when he was killed.

Palestine

Equine Encephalomyelitis.—Available data indicate that a disease which resembles equine encephalomyelitis from a clinical and histological examination differs from Borna disease and also from the disease described in the United States, but that it is similar to the

condition found in India.—(*J. Comp. Path. and Therap., April*, 1945 :: 109-116)

Spain

Foot-and-Mouth Disease Virulent.—Reports received *via* France indicate that outbreaks of foot-and-mouth disease of unusual virulence are rampant in Spain. The mortality runs as high as 30 per cent in mature cattle and up to 75 per cent in young stock. French livestock sanitarians are perturbed over the situation, as the virulence has had no parallel in Europe.

COMING MEETINGS

Nebraska State Veterinary Medical Association. Lincoln, Neb., Dec. 11-12, 1945. J. D. Sprague, David City, Neb., secretary.

Conference of Research Workers in Animal Diseases in North America. Palmer House, Chicago, Ill., Dec. 4, 1945. (Attendance limited to conference members only.) William H. Feldman, The Mayo Foundation, Rochester, Minn., secretary.

Horse and Mule Association of America. Palmer House, Chicago, Ill., Dec. 5, 1945. Wayne Dinsmore, 407 S. Dearborn St., Chicago 5, Ill., secretary.

The National Association of Federal Veterinarians. LaSalle Hotel, Chicago, Ill., Dec. 5-6, 1945. W. C. Herrold, 69 Glenmont Ave., Columbus 2, Ohio, secretary-treasurer.

United States Live Stock Sanitary Association. LaSalle Hotel, Chicago, Ill., Dec. 5-7, 1945. R. A. Hendershott, 1 W. State St., Trenton, N. J.

National Assembly of Chief Livestock Sanitary Officials. LaSalle Hotel, Chicago, Ill., Dec. 3-4, 1945. Dr. C. C. Franks, 1133 44th St., Des Moines 11, Iowa, secretary.

Delaware Veterinary Medical Association. Wilmington, Del., Dec. 14, 1945. V. C. Lancaster, New Castle, Del., secretary.

Ohio State Veterinary Medical Association. Deshler-Wallick Hotel, Columbus, Ohio, Jan. 2-4, 1946. R. E. Rebrassier, Ohio State University, Columbus 10, Ohio, secretary.

Oklahoma Veterinary Medical Association. Skirvin Hotel, Oklahoma City, Okla., Jan. 7-8, 1946. C. H. Fauks, 507 Cotton Exchange Bldg., Oklahoma City 2, Okla., secretary-treasurer.

University of Pennsylvania. Annual Conference for Veterinarians. School of Veterinary Medicine, 39th & Woodland Ave., Philadelphia 4, Jan. 8-9, 1946. G. A. Dick, School of Veterinary Medicine, dean.

Indiana State Veterinary Medical Association. Severin Hotel, Indianapolis, Ind., Jan. 9-10-11, 1946. H. A. Lidikay, Darlington, Ind., secretary.

Cornell University. Annual Conference for Veterinarians. New York State Veterinary College, Ithaca, N. Y., Jan. 9-11, 1946. M. G. Fincher, New York State Veterinary College, acting dean.

Kansas Veterinary Medical Association. Hotel Jayhawk, Topeka, Kan., Jan. 14-15, 1946. C. W. Bower, 3119 Stafford St., Topeka, Kan., secretary-treasurer.

Mississippi State Veterinary Medical Association. Hotel Edwards, Jackson, Miss., Jan. 14-15, 1946. G. D. Gates, Clarksdale, Miss., secretary.

Louisiana State University and Louisiana Veterinary Medical Association. Annual Short Course. Louisiana State University, Baton Rouge, Jan. 16-17, 1946. A. H. Groth, Department of Veterinary Science, Louisiana State University, Baton Rouge, head.

Illinois State Veterinary Medical Association. Leland Hotel, Springfield, Ill., Jan. 17-18, 1946. C. C. Hastings, Williamsville, Ill., secretary-treasurer.

Iowa Veterinary Medical Association. Hotel Fort Des Moines, Des Moines, Iowa, Jan. 22-24, 1946. C. C. Franks, 720 Grand Ave., Des Moines, Iowa, secretary.

Michigan State College. Annual Conference for Veterinarians. School of Veterinary Medicine, Michigan State College, East Lansing, Jan. 23-24, 1946. Ward Giltner, School of Veterinary Medicine, dean.

North Carolina State College. North Carolina Conference for Veterinarians. 205 Polk Hall, Raleigh, N. C., Jan. 22-25, 1946. C. D. Grinnells, State College Station, Raleigh, N. C., program chairman.

Minnesota State Veterinary Medical Society. Hotel Nicollet, Minneapolis, Minn., Jan. 28-30, 1946. H. C. H. Kernkamp, University Farm, St. Paul 8, Minn., secretary.

Alabama Polytechnic Institute. Annual Short Course for Veterinarians. Auburn, Ala., Feb. 26-28, 1946. E. S. Winters, College of Veterinary Medicine, Auburn, Ala., administrative secretary.

MARRIAGES

Capt. R. H. Cook (K.S.C., '43), 17th Vet. Evac. Hosp., APO 758, c/o P.M., New York, N. Y., to Miss Ginette Colombier, June 12, 1945.

Lt. Kenneth P. Mitchel (K.S.C., '43), Memphis A.S.F. Depot, Memphis 2, Tenn., to Miss Marjorie Burger, Summerfield, Kan., July 26 1945.

Dr. John J. Porter (K.S.C., '43), Dept. of Veterinary Medicine, University of Wisconsin, Madison, Wis., to Miss Kathleen Maxwell Orr, June 29, 1945.

Lt. Col. Louis E. Stanton (I.S.C., '25), Ward 11, Tilton General Hospital, Fort Dix, N. J., to Lt. Charlotte Noonan, A.N.C., July 14, 1945.

Dr. Thomas W. Tuttle (K.S.C., '45), 523 E. Milwaukee St., Fort Atkinson, Wis., to Miss Helen Hoover, Manhattan, Kan., Sept. 23, 1945.

Dr. Carl G. Spencer (I.S.C., '40), 3028 Mt. Vernon Ave., S.E., Cedar Rapids, Iowa, to Miss Ruth Janet Eickelberg, Waterloo, Iowa, Oct. 2, 1945.

BIRTHS

To Dr. (K.S.C., '31) and Mrs. Carl J. Majerus, Fall City, Nebraska, a son, Robert Joseph, April 20, 1945.

To Ph.M. 1/c (Tex., '41) and Mrs. Warren J. Nickerson, 607 Mason St., San Antonio, Texas, a daughter, Anne Ellen, May 2, 1945.

To Dr. (K.S.C., '33) and Mrs. A. S. Robertson, R. R. 1, Box 30 A, Madera, Calif., a daughter, Chenowith, June 22, 1945.

To Dr. (O.S.U., '43) and Mrs. E. C. Krantz, Belleview Ave., Dover, Ohio, a son, Thomas Lee, June 26, 1945.

To Capt. (Colo., '35) and Mrs. Robert L. Bean, 220 N. Morgan St., Portland, Ore., a daughter, Judith Ann, July 3, 1945.

To Capt. (U.P., '39) and Mrs. Karl F. Steinbach, the captain now serving with the Army in Germany, a daughter, Robin Mary, Sept. 29, 1945.

To Capt. (Corn., '38) and Mrs. Norman E. Seibert, Hershey, Pa., a son, Scott Ashley, Oct. 31, 1945.

DEATHS

John Snyder Barbee (K.C.V.C., '08), 72, Pasadena, Calif., died Sept. 21, 1945. Dr. Barbee was head of the Food Inspection Service of Kansas City, and later joined the Kinsley Laboratories, working on the serum-virus immunization project of that laboratory. A native of the Midwest, he had lived in California since 1936.

W. W. Bertz (K.S.C., '30), 38, Veterinary Corps of the Regular Army, has made the supreme sacrifice according to word received by Mrs. Bertz, at Lexington, Mo. Major Bertz was killed in action in the Far Eastern Campaign. He was admitted to the AVMA in 1937.

Basil A. Brown (Ont., '96), Fullerton, Calif., died in September, 1945. Dr. Brown had practiced in Fullerton for the past twenty-two years, and had been a member of the AVMA since 1929.

E. A. Caslick (Corn., '22), 48, Paris, Ky., died Aug. 23, 1945. Dr. Caslick had been associated with the A. B. Hancock thoroughbred breeding establishment for many years. He was admitted to the AVMA in 1924.

T. A. Doyle (U.P., '09) Natick, Mass., died Oct. 15, 1945. Dr. Doyle was admitted to the AVMA in 1925.

W. A. Faloon (U.S.C.V.S., '15), 70, Twin Falls, Idaho, died recently. Dr. Faloon was the first city meat inspector in Twin Falls, from 1919 to 1921.

Ernest T. Faulder (K.C.V.C., '08), 65, Buffalo, N. Y., died Aug. 30, 1945. Dr. Faulder retired two years ago from the state's service, having been associated with the State Department of Agriculture and Markets since April 1, 1923. Previous to that time, he had served with the federal Bureau of Animal Industry in Buffalo, Kansas City, East St. Louis, and Albany. Dr. Faulder was a past president of the United States Livestock Sanitary Association and a member of the New York State Veterinary Medical Association. He was admitted to the AVMA in 1909.

Earl H. Meyer (St. Jos., '23), 49, Lincoln, Neb., died recently. He was admitted to the AVMA in 1928.

Charles D. Renfrow (K.C.S., '41), 28, West Plains, Mo., is believed to have lost his life March 13, 1945, while flying a bombing mission on Frankfurt, Germany. For gallantry and bravery on this mission, Captain Renfrow was awarded the Distinguished Flying Cross posthumously. He was admitted to the AVMA in 1941.

Harry Shepard (S.W., '16), 59, Kerrville, Tex., died Oct. 17, 1945. Dr. Shepard served with the Cavalry in World War I. After the war, he practiced in Kileen and Dallas. On leaving Dallas, he served with the BAI on tuberculosis eradication, moving later to Kerrville and San Antonio, where he engaged in private practice. He was admitted to the AVMA in 1921.

George O. Shipley (O.S.U., '25), 54, West Branch, Ia., died Sept. 24, 1945. Dr. Shipley had practiced at West Branch for the past eighteen years.

Homer Alvin Wilson (K.C.V.C., '13), 58, Malta Bend, Mo., died Oct. 5, 1945. During his veterinary career, Dr. Wilson carried on a practice at Malta Bend, served as first lieutenant in the veterinary corps in World War I, was state veterinarian in Missouri, and then entered the BAI, where he served until his condition became critical in November, 1944.

THE VETERINARY PROFESSION AND THE WAR

Procurement and Assignment Service Transferred to Federal Security Agency

The War Manpower Commission was terminated by Executive Order dated Sept. 19, 1945. At the same time, the functions of the Procurement and Assignment Service, and of the chairman of WMC with respect thereto, were transferred to the Federal Security Administrator. The transfer became effective at midnight on October 20, and the required personnel, records, property, and funds were made available to the Federal Security Agency for the functions of the P and A Service.

Available information indicates that the service will continue, for several months at least, in relation to matters affecting medical, dental, and veterinary manpower and the nation's needs for such professional personnel. However, as per notification sent to state chairmen in a form letter dated Sept. 4, 1945, the certification of Forms 42-A (Special-Revised) on registrants aged 18 through 25 was discontinued as of Sept. 15, 1945, by the Selective Service System. Thereafter, such deferment requests were to be filed by employers directly with local boards.

Army to Breed War Dogs

The War Department announces a long-range program for breeding and training dogs of six breeds having recognized military value: German Shepherd, Boxer, Airedale Terrier, Doberman Pinscher, Giant Schnauzer, and Rottweiler. It is planned that the Remount Service Branch will place brood bitches with competent civilian dog breeders, under a plan similar to the one long followed in breeding and training horses. No additional dogs will be procured at this time.

Scout Dog Platoon in Saipan

Twenty-one husky dogs, arriving too late to do much damage to the Japs, are not worried about the point system, but are, nevertheless, growling their heads off. They are members of the 44th Infantry Scout Dog Platoon, one of a dozen such Army outfits.

Meat Inspection on Guadalcanal

Though the war is over, meat inspection continues. The Veterinary Corps will inspect food as long as there are men and

fresh provisions overseas. The picture shows (right) Capt. Solomon Mirin (O.S.U., '36) and (left) 1st Lieut. Howard Taylor (Colo., '42) being assisted by Cpl. Pascal Harris in the inspection of meat received on reverse Lend Lease from New Zealand. These officers have been on Guadalcanal for twenty months, and their organization has been awarded the Meritorious Service Unit Plaque.

ASTP Veterinary Students

Information released from the Office of The Surgeon General informs us that approximately 1,660 veterinary students participated in the professional ASTP, many of them for a very short period of time.

The report continues: "Approximately 140 graduates of the ASTP were commissioned in the Veterinary Corps, AUS, at the time of graduation. Other graduates who participated in the program were later commissioned from civil life or from an enlisted status after induction. The latter number is not known.

"A student who was a member of the ASTP

at time of graduation and was not appointed in the Veterinary Corps at the time of graduation was given an opportunity to enter the military service as an enlisted man and if he did not so elect was separated from the Enlisted Reserve Corps and became a civilian. Those who were not commissioned and ordered to active duty at the time of graduation were not appointed in the Veterinary Corps Reserve."

Veterinary Unit Awarded Plaque

SCU 1100, First Service Command Veterinary Service at Large, Headquarters First Service Command, Boston, Mass., has been awarded the Meritorious Service Unit Plaque. The citation says that it has "accomplished in an outstanding manner the assigned tasks of source, storage, and shipment inspections of subsistence, has supplied troops both in the United States and abroad, and has responded commendably to military exigencies requiring long hours of duty."

Commendation for Veterinary Officer

Capt. Robert H. Udall, V. C., has been commended by the chief of the Chemical Warfare Service because he "participated beyond the call of duty," by subjecting himself "to pain, discomfort, and possible permanent injury, for the advancement of research in protection for our armed forces."

Colonel Whitney Retires

The following brief record of service is furnished by the Office of The Surgeon General, along with a notice of retirement from active duty of a veterinary officer.

Colonel Clifford C. Whitney was born May 31, 1891, at Orange, Mass. He received his degree of doctor of veterinary medicine from the University of Pennsylvania in 1915. He accepted a commission as second lieutenant in the Veterinary Reserve on December 7, 1917, and was ordered to active duty on May 7, 1918. From 1918 to 1921, he was assigned to laboratory duties at the University of Pennsylvania, Fort Leavenworth, Kan., Fort Sam Houston, Texas, and the Army Medical Center, Washington, D. C. Following a course of instruction at the Chicago Veterinary School in 1921, Colonel Whitney served short tours of duty at Camp Travis, Texas, Eighth Service Command Laboratory, Fort Sam Houston, Texas, and Fort Robinson, Neb. In 1929, he was sent to the Philippine Islands, serving at Fort Wm. McKinley until 1931, when he returned to the states and was assigned to duty at Fort Clark, Texas. In 1936, he was assigned to the Panama Canal Department, and in 1938, upon his return, was assigned to Fort Brown, Texas. Colonel Whitney attained the permanent grade of colonel on September 10, 1939, and will be on duty at Camp Bowie, Texas, until his retirement for physical disability on November 30, 1945.

Receives Promotion

Captain Walter B. Lukens, V.C., (Corn., '44) has recently been promoted to that rank. The promotion was announced at Mason General Hospital, Brantwood, N.Y., where he is station veterinarian, medical inspector, and post food supervisor.

Veterinarian in Germany

Col. Daniel S. Stevenson, V.C., Lexington, Ky., is now with the Seventh Army in Germany, and an interview with him quotes: "Rations for the Seventh Army Troops come in mostly at Bremen and LeHavre. From there our share is sent to . . . depots at Mannheim and Giessen. . . . Army veterinarians inspect and supervise the handling of all products of animal origin issued to the troops—meat, poultry, butter, eggs, cheese, etc. Such perishable goods are placed in cold storage plants of which we have three main ones at Mannheim, Stuttgart, and Frankfurt. Temporary or portable plants are located at Giessen, Kassel, and Hersfeld. . . . The doctors also serve as the base depot commander's representative on the storage of canned goods of all types—inspecting broken and damaged cases to determine how many cans of pineapple, milk, beans, etc. are salvageable."

Formal Education for Pharmacists in Illinois.—The state General Assembly laid on the table a law that would permit druggists of five years experience under a registered pharmacist to take the examinations for registration. The Assembly, however, passed a bill permitting the sale of "household remedies" outside of drug stores, which was vigorously opposed by the druggists' organizations.

Roach-Repellent Flooring

A newly found flooring, incorporating finely divided copper powder in magnesium oxychloride cement, is repellent to roaches and lethal to bacteria, yeasts, and molds. It is called Hubbellite, and is marketed by the Mellon Institute of Industrial Research. Similar to a plastic, but stronger than concrete after a three-week setting period, it is resilient and does not crack easily.—*Food Industries, September, 1945.*

COMMITTEE REPORTS

Adopted at the Business Meeting
August 20-22, 1945
Chicago, Ill.

Standing Committees

Education

The year now coming to a close has been an eventful one for many of our educational institutions. One very significant change affecting colleges of veterinary medicine consists of the cancellation of accelerated programs. All schools will return to a decelerated program with the opening of school after September, 1945.

The effect of the war is reflected in diminished enrollment in all classes and probably will be more pronounced in 1945 and 1946. The Selective Service System regulations now in force threaten to reduce further the numbers of pre-veterinary and veterinary medical students. As a result of decreased attendance, we must anticipate a greater shortage of veterinarians after 1948. Whether or not this will be critical, only time will tell. Selective Service System officials dealing with education of medical, dental, and veterinary students have expressed the opinion that all schools will have respectable classes consisting, of course, of returned veterans and those physically unfit for military service.

The chairman of the Education Committee met with the Postwar Planning Committee on Dec. 5, 1944. Many of the problems are common to both committees. The subject of internship training for veterinarians was discussed in detail. The consensus of opinion was that the Committee on Education could be of great assistance in working out methods for developing and directing internship training.

A brief meeting of the Committee on Education was held in Chicago on the evening of December 6. Only problems of general interest were discussed.

In February, 1945, the chairman, at the request of the Board of Governors, attended a meeting of the American Council on Education in Chicago for the purpose of discussing a program for professional schools, as related to the United States Armed Forces Institute. Representatives from the following professional associations participated in the conference: The American Associations of Schools of Social Work, School of Social Service Administration, University of Chicago, Chicago; The National Association of Boards of Pharmacy, Chicago; The Section of Legal Education and Admissions to the American Bar Association, Urbana, Ill.; The Association of Collegiate Schools of Nursing, School of Nursing Education, University of Chicago, Chicago; The Council on Dental Education, American Dental Association, Chicago; The Board of Education for Librarianship, American Library Association, Chicago; The Society for Promotion of Engineering Education, Rose Polytechnic Institute, Terre Haute, Ind.; The College of Pharmacy, University of Illinois, Chicago; The Association of the American Medical Colleges, Chicago; The Committee on Education, American Veterinary Medical Association. The Committee aided the American Council on Education in preparing a questionnaire for veterinary medicine to be used as a guide by educational officers in counselling men and women in the Armed Services, and assisted Lt. Colonel Carl W. Hanson, of the United States Armed Forces Institute, at Madison, Wis., in preparing a statement relative to correspondence courses for prospective pre-veterinary medical students serving in the United States Armed Forces. He was also furnished a list of the approved colleges of veterinary medicine.

On Feb. 26, 1945, Senator Allen J. Ellender, of Louisiana, introduced into the United States Congress Bill 637. The bill includes provisions for the deferment of adequate numbers of pre-medical and medical students, and it also provides for the deferment of pre-dental and dental students. Pre-veterinary and veterinary students were not included. Needless to say, a great deal of effort was expended to have Senator Ellender modify the bill to the extent that students of veterinary medicine would be included. In this, we were not successful. We understand that while the Committee on Military Affairs of the Senate has held extended hearings on the Ellender bill, it has not issued statements of its reaction to the proposal.

The Committee on Education is engaged in the study relative to revising and publishing new and old textbooks. The Committee appreciates that there is a lack of modern and authoritative books treating of various phases of veterinary medicine. Many older books need revision and there is a growing need for new books, many on subjects that have not been heretofore provided for. The next few years will bring new and greater problems in education.

While we will not need to worry about an over supply of students for the next two or three years, we will eventually have greater numbers than ever before. There will also be a greater demand for research which will come through the demand of the general public.

For the expansion of veterinary medicine, we will necessarily, need greater numbers of textbooks. The Committee will work with the deans of the various colleges and their appointees in an effort to select editors and authors to carry on this important job. One of the members of the Committee, Doctor W. A. Hagan, succeeded in interesting a prominent publishing concern to the

extent that their representative has made an extensive tour, gathering general information including needs for textbooks, finding authors for writing them, etc.

The Committee is preparing to conduct regular college inspections. We hope to examine a number of colleges each year. At least three schools will be inspected in the near future.

The Committee recommends that the following colleges be placed on the accredited list of this association for the coming year and their graduates be eligible for membership in this association:

1) Alabama Polytechnic Institute, Division of Veterinary Medicine.
2) Colorado Agricultural and Mechanical College, Division of Veterinary Medicine.
3) École de Médecine Vétérinaire de la Province de Québec, Université de Montréal.
4) Iowa State College, Division of Veterinary Medicine.
5) Kansas State College, School of Veterinary Medicine.
6) Michigan State College, School of Veterinary Medicine.
7) New York State Veterinary College, Cornell University.
8) The Ohio State University, College of Veterinary Medicine.
9) Ontario Veterinary College, University of Toronto.
10) University of Pennsylvania, School of Veterinary Medicine.
11) Texas Agricultural and Mechanical College, School of Veterinary Medicine.
12) State College of Washington, College of Veterinary Medicine.

REORGANIZATION OF THE COMMITTEE ON EDUCATION HAS BEEN PROPOSED

In 1944, an amendment was submitted proposing a reorganization of the personnel as well as the duties and scope of the Committee on Education. The Executive Board failed to recommend the amendment but reported that a subcommittee of the Board would be appointed to redraft the proposal and submit it at a later date. This action was sustained by the House of Representatives. The Committee has completed its investigation and has submitted its recommendations to the Board.

The proposed amendment of the administrative by-laws has been published in the May, June, and July JOURNALS.

If the proposal is adopted, the Council on Education will consist of nine members, three of which will constitute an Executive Committee of the Council and these members will be elected by the Executive Board of the Association for a term of six years. The remaining members of the Council will be appointed by the president. The Council will annually elect its own chairman and secretary. Among the important duties of the Council on Education will be the inspection of all veterinary colleges at least triennially by the Executive Committee of the Council.

If this proposed amendment is adopted, it will greatly strengthen the Committee on Education, and will enable said committee to be of greater service to all concerned.

s/ W. L. BOYD, *Chairman*
W. A. HAGAN — L. M. HURT
E. T. HALLMAN — F. W. SCHOFIELD

Resolutions

The report of the Resolutions Committee was published in the "Proceedings of the Business Session" (*see* Oct. 1945 Journal, p. 195).

Biological Products

The committee reaffirms the list of biological products approved in 1944 without changes.

s/ H. E. BIESTER, *Chairman*
C. C. DOBSON — G. H. GOOD
W. S. GOCHENOUR — D. I. SKIDMORE

Therapeutic Agents and Appliances

At the 1944 meeting of the American Veterinary Medical Association, recommendations were made by this committee which were approved. They included the proposals to change the name to the "Committee on Therapeutic Agents and Appliances"; that the committee should be "suitably enlarged, (and that) it should at least represent authorities on equine, bovine, porcine, ovine, caprine, avian, and canine ailments, their treatment and control." Approved also was the recommendation that "authorities in the fields of chemistry, physics, pharmacy, nutrition, surgery, bacteriology, virology and mycology" might be retained as "consultants who would advise on subjects within their respective fields."

After giving mature consideration to the questionnaire method of obtaining opinions on the action of drugs, as was done last year, your committee believes that this method has shortcomings of such nature as to render it impractical and undesirable.

Under the circumstances, and until better methods have been devised, we believe a greater service would be rendered by the Committee on Proprietary Pharmaceuticals if it concerned itself with the work of classifying drugs as to their near-worthlessness, to the end that the listing of such agents might be discontinued in veterinary supply catalogs. Examples of such agents are *sulfocarbolates* or *phenolsulfonates* for intestinal antiseptics; *kamala* for expulsion of tapeworms in fowl; and *formaldehyde* for the treatment of mastitis in cows. Your committee recommends that the three agents above mentioned be considered of no value for the purpose herein-above specified.

Your committee is of the opinion that there is need for the reorganization of the Committee on Proprietary Pharmaceuticals, and for the appropriation of sufficient funds annually to enable it to render a service to the members of the American Veterinary Medical Association. Without provision for the execution of recommendations which may be made by an able committee in this field, it is largely a waste of effort for any committee to deliberate and make recommendations that are simply to be filed.

s/ J. V. LACROIX, *Chairman*
R. S. AMADON — H. E. MOSKEY
R. L. MUNDHENK

Public Relations

Public relations deals with those things that affect public sentiment. The importance of good public relations is emphasized by the following statement, which is credited to Abraham Lincoln, "with public sentiment in its favor, nothing can fail; without it nothing can succeed." This has long been recognized by certain business, professional, and political organizations and government agencies. They annually spend many millions of dollars on printed matter, radio programs, moving pictures, endowments, and other things to promote good will and advertise their products, services, or activities. The American Veterinary Medical Association also has recognized the value of such public relations activities, but, up to the present time, it has been

able to make only limited use of the facilities mentioned.

Veterinary medicine has received much excellent publicity through the advertisements and activities of certain companies who manufacture biological and pharmaceutical products for veterinary use. These companies are trying to promote a more general appreciation of veterinary service but, so far, their efforts have been directed chiefly to the livestock-owning public. The AVMA has long recognized that too many people still do not know of the various ways in which they are being served by veterinary medicine. The rationing of such staple articles of food and clothing as meat, butter, cheese, and leather shoes has made most people conscious of the importance of the livestock industry. But it is not known, generally, that the welfare of the livestock industry depends on how well veterinary medicine controls the diseases of animals, which, if not controlled, would destroy the industry. These diseases not only affect the availability of certain animal products but also affect their cost to the consumer.

The American Veterinary Medical Association, with the coöperation of some of the state and district veterinary societies, has for the past several years tried to develop a program of public relation activities which would reach a wider audience. During the past year, news stories, radio releases, and radio programs dealing with the following subjects were released through the department of publicity and public relations of the AVMA. The material presented was prepared by a selected group of veterinarians.

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Subject Matter Contained in Livestock Health Briefs Furnished to Farm Editors of Radio Stations Throughout the Country

Swine pox
Brood sow mastitis
Postwar veterinary needs
Rabies among farm horses
Paint poisoning
Saving spring pigs
Sheep scab control
Blackleg
Cattle testing for brucellosis
Hog cholera in Italy
Sheep scab
Livestock parasites
Sulfa drugs and enteritis
Poultry coccidiosis
Sanitation and calf scours
Bot eradication
Pullorum diseases in turkeys
Feeds affect milk odor
Care at calving time
Rats as parasite carriers
Care of horses' feet
Malnutrition in young animals
Botulinus poisoning
Winter vitamin needs
Dairy-barn sanitation
Swine brucellosis
Calf pneumonia
Encephalomyelitis
Mastitis losses
Veterinary accomplishments
1945 humane award offer
Hog cholera
Anthrax spread by ticks
Lamb coccidiosis
Calf nutrition
Pig anemia

Brood sow nutrition
Swine influenza
Canadian fight against blackleg
Vitamin needs of swine
Mastitis (dairy cattle)
Tetanus immunization
Cattle dehorning
Shipping losses
Poultry improvement plans
Parasites
Vitamin A deficiency
Trucks as disease spreaders
Liver flukes
Bovine tuberculosis
Kindness to cows
Boars and brucellosis
Postwar veterinary planning
Toothache in horses
Swine rations
Shipping losses among mules
Urea in nutrition
Rhinitis
Sulfa drug deficiency
Opportunities for veterinary careers, etc.

State Association Radio Programs

Mineral deficiences in livestock
Confusion of hog cholera with other diseases
Mastitis—importance of good husbandry in its prevention
Nutrition and livestock health
Anaplasmosis
Swine pox
Saving newborn pigs
Pullorum disease
Vitamin A deficiency in cattle
Precautions in buying dairy herd replacements to prevent introduction of disease
External parasites of livestock
Swine enteritis
Coccidiosis
Pinkeye
Conditioning work horses
Dairy calf nutrition
Fowl paralysis
Respiratory diseases of horses
Bovine tuberculosis
Federal meat inspection
Fowl pox
Brucellosis of cattle
Swine brucellosis
Anthrax
Sheep scabies
Cattle scab

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General News Releases

(Including News Bureaus, Farm Papers, Extension Editors, etc.)

Eviscerated poultry
Sheep scab
Digestive disturbances in swine
Care of horses' feet
Germicidal action of vegetables (Huddleson research)
Diseases among Army mascots
How to save more dairy calves
Care of dogs
1945 humane award plans
Swine brucellosis
Veterinary Corps in Europe
Pullorum diseases of turkeys
Hookworm in small animals
Veterinary achievements aid food production
Swine pox
Veterinary inspection protects Army meat supplies
Swine influenza
Veterinary milk inspection
Poultry health pointers
Calf vaccination

The general news releases were circulated nationally through all of the principal news bureaus. Certain items, considered worthy of special attention, were mailed directly to a national list of 1,500 newspapers. Special releases were furnished about once each month to all agricultural college extension editors for reissuance to daily and weekly papers. Another series of news releases were mailed once each month or oftener to all of the leading farm journals. The radio releases were sent monthly to approximately 250 radio stations situated in all parts of the country.

The material released through the department of publicity and public relations undoubtedly reached a large audience and has done much to build up better veterinary public relations, but it too has reached chiefly the livestock-owning public. The full importance of veterinary service is known only to a comparatively small number of people. Veterinary medicine needs to further expand its public relations activities. Means are now being sought whereby a greater audience will be reached. To do this will require the use of all available facilities with which one may contact the general public. To date, no one has attempted to write the story of veterinary medicine so that the general public will not only read it, but also understand it. Veterinary medicine has accomplished much of interest to everyone. By controlling the diseases among animals, it has contributed to human health and to the economic and social welfare of the nation as a whole. The publication of a journal similar to *Hygeia* and of booklets dealing with information on the care and first aid of dogs or other animals

has been considered. However, to do this will require enlarging the facilities of the office of the American Veterinary Medical Association.

This committee has had called to its attention a panel discussion entitled "Appraising Veterinary Service," which was presented before the Cedar Valley Veterinary Medical Association at Waterloo, Iowa, and was published in the December, 1944, issue of the *North American Veterinarian*. This discussion deals with various matters which are of fundamental importance as regards veterinary public relations. This committee feels that similar panel discussions might well be presented before other groups. Much good should come from such frank discussions, because public opinion is formed largely by what it hears, sees, and reads. If every veterinarian will be cognizant of this, and will do his part well, the development of good veterinary public relations will be assured.

s/ C. F. SCHLOTTHAUER, *Chairman*
CLIFTON D. LOWE — E. C. W. SCHUBEL
A. H. QUIN — CASSIUS WAY

Poultry

No meeting of the Committee has been held during the year, and its members have offered no suggestions. The Committee, therefore, has nothing new to report.

s/ P. V. NEUZIL, *Chairman*
F. R. BEAUDETTE — J. W. LUMB
W. R. HINSHAW — FRANK THORP, JR.

Nutrition

The principal activity of the Committee on Nutrition during the last year has been to glean from the voluminous literature on nutrition of animals special articles and abstracts for publication in the Nutrition section of the AVMA JOURNAL. In doing this, the practical phase of nutrition has been shared with the basic scientific principles of this subject. Many of the experimental findings in nutrition have but a limited practical application in the forms reported, and therefore cannot be advantageously used by practitioners. Most experiments are conducted by completely depriving the animals of a single necessary nutrient, whereas deficiencies observed on the farms are often multiple in character. Basic facts are essential but of limited value, until they find application on the farm.

At the present time, most of our information on nutrition must come necessarily from outside the veterinary profession. There is a great need for more veterinarians to enter the field of nutritional research and in this way be in a position to interpret experimental results from a medical point of view. This can be accomplished only after more complete courses in nutrition are established in our veterinary colleges, and veterinarians are encouraged to continue their studies in the biological sciences and chemistry after graduation.

The present day veterinarian should be provided with nutritional knowledge through veterinary publications, and by having competent nutritional specialists appear on veterinary programs and conferences. Each state association should have a standing committee on nutrition, which should make a progress report at each meeting, setting forth the newer developments in this field.

The job of the Committee is to keep constantly before the profession the place of nutrition in animal well being and efficient production; to show that management practices, nutrition regimens, and symptomatology of deficiencies go hand in hand to accomplish this; to place in proper perspective the relation of nutrition to disease control.

The Nutrition section in the JOURNAL is the logical place for this to be done. Competent practitioners should be encouraged to make case reports of nutritional abnormalities occurring in their practices.

It should be kept in mind that each community experiences deficiencies that are caused by local conditions. Soil fertility, rainfall, erosion, leaching, farm practices, feeding characteristics, climatic conditions, and soil composition are all vitally concerned in profitable animal production and feeding. The swine belt, cattle country, sheep raising sections, milk sheds, thoroughbred breeding areas, saddle horse country, egg producing regions, and the centers of broiler production were not arrived at by accident, but have grown up partly because of nutritional facilities present in these particular sections that favor this type of animal husbandry.

THE FEED SITUATION

The feed situation has improved somewhat over what it was last year. The amount of feed per animal unit is larger, but the principal difficulty lies in distribution. Because of the lack of shipping space, part of the northeastern section of the United States has experienced a rather severe feed shortage. Even in the Cornbelt, which ordinarily is a feed surplus area, feeders have experienced difficulty in obtaining a sufficient quantity of supplemental feeds.

THE COMMITTEE

The Committee needs to be constructively organized. A desirable type of organization would be for the various members to be especially interested in different phases of nutrition: proteins, carbohydrates, fats, vitamins, minerals, etc.; or men interested in the different species of animals and the different branches of applied veterinary medicine: general practice, small animals, sheep, dairy cattle, beef cattle, horses, poultry, etc. The former would be difficult to do within the personnel of the association, making the latter scheme almost necessary.

In so far as practicable, the oldest member of the committee should be appointed chairman, with the newer members working up to this. Thus, the incoming chairman would have sufficient time to outline a smooth working program that could be put into immediate operation following his appointment. In such an organization the utmost care would be imperative when appointing new members of the committee.

s/ C. C. HASTINGS, *Chairman*
CLIFF D. CARPENTER — H. M. LEGARD
GEORGE H. HART — H. J. METZGER

Registry of Veterinary Pathology Army Institute of Pathology

In the August, 1944, issue of the JOURNAL of the AMERICAN VETERINARY MEDICAL ASSOCIATION, there appeared the first public announcement of the establishment, at the Army Institute of Pathology, of a new collection to be known as the Registry of Veterinary Pathology. The purpose of the new registry was stated as follows: "To assemble (a) material representing general pathologic anatomy, including vitamin deficiencies, specific diseases of different tissues and organs, and examples of natural and experimentally induced neoplasia; (b) a complete collection of prepared slides representing the normal histology of the different species of animals, including domesticated and wild mammals, birds, and cold-blooded vertebrates; and (c) mate-

rial illustrating experimentally induced lesions of infectious diseases."

Although the new registry has been in operation for less than one year the collection has experienced a satisfactory development. Material representing approximately 500 cases has been acquired and new material is being received daily. In addition, the tissue diagnostic service, which is available without charge to practicing veterinarians, is being utilized by those who recognize the value of precise information in the intelligent management of problems pertaining to tissue pathology. It is of interest to note that the number of animal hospitals and animal clinics taking advantage of the diagnostic service is steadily increasing. Such service provides valuable additional material for the collection.

Other activities of the Registry have included the preparation of Kodachrome and black and white standard size lantern slides of gross pathologic material, and the preparation of black and white lantern slides of photomicrographs. This material constitutes the nucleus of what is hoped will eventually be a useful and highly desirable loan collection for special lectures and demonstrations.

Considerable effort has been expended during the past eight months in contacting, by correspondence, individuals and institutions that might be in a position to coöperate in the development of the Registry by contributing desirable material. Without exception, the response has been gratifying and considerable valuable material has been obtained and much more has been promised.

The future efforts of the Committee will be directed to (1) further publicity for the Registry by publication in certain professional journals of editorial comment; (2) a survey of the teaching collections of the respective veterinary colleges in the United States and Canada to determine deficiencies in pathologic material for teaching purposes and to offer to provide desired material if available from the Registry; (3) exploration with the Research Council of the American Veterinary Medical Association of the possibilities of creating at the Army Institute of Pathology a fellowship in veterinary pathology. Such a fellowship would provide for qualified students an unexcelled opportunity to complete their formal training on a basis of graduate study. If the proposed fellowship can be established, it should contribute importantly to the training of young men interested in pathology as a career. The eventual benefits to veterinary education and research are obvious. (4) The development of the collection phase of the Registry's activities, as set forth in the statement on "purpose" quoted previously in this report.

It is perhaps unnecessary to mention that the funds contributed by several other societies for the support of special registries of pathology at the Army Institute of Pathology are insufficient to cover the costs incurred. This is also true of the Registry of Veterinary Pathology. To assist the Army Institute of Pathology in furthering the development and usefulness of our registry, the Committee recommends that for the year 1946 the sum of $1,000 be provided.

Considering the fact that the Registry of Veterinary Pathology was launched during the exigencies inherent to war conditions, the development during the first year of its existence has been quite satisfactory. When conditions become more normal and our teaching and research institutions regain their usual complement of technical and professional personnel, contributions to the collection will probably increase manyfold.

Of great importance in the development of the collection to date is the fact that the Surgeon General of the Army has assigned for full-time duty at the Army Institute of Pathology an enthusiastic, competent, well-trained veterinary pathologist from the Army Veterinary Corps. The duties of this officer are confined largely to matters pertaining to the Registry of Veterinary Pathology. If the Registry is to attain the degree of completeness and utility anticipated by this committee, it appears imperative that an officer representing the Veterinary Corps of the Army and well trained in pathology be included in all future officer personnel assigned to the Army Institute of Pathology.

The Committee firmly believes that with the coöperation of practitioners, experimentalists, laboratorians, and graduate students the Registry of Veterinary Pathology should eventually become a factor of great importance in the teaching and investigation of diseases of animals and human beings.

WILLIAM H. FELDMAN, *Chairman*
CAPT. CHARLES L. DAVIS, HARRY W. SCHOENING V.C.
LT. COL. BALDUIN LUCKE, M.C.
Member *ex officio*.

Special Committees

History

It is the consensus of opinion of the Committee that the best approach to the problem of compiling a history would be to have the chairman of the committee assign to each member one phase of the project. This member would then bend his efforts toward acquiring and reporting information upon this single phase.

Suggested branches of history which should be considered, and which would serve as a starting point are:

Veterinary Schools, technical and professional.
Biographies of past presidents.
Livestock sanitary service, national and state.
Professional honor roll.
Outstanding achievements in research.
Contributions to improvement of public health.
Army Veterinary Corps.

Much of the history of veterinary medicine in America has been recorded in the journals as "on the spot" news, but has not been assembled as a history because that would be difficult, discouraging, baffling, and time-consuming; while the payoff would be nil because a book, if published, would not sell for enough money to make the project worth while.

s/ GEORGE H. GLOVER, *Chairman*
W. E. COTTON JOHN R. MOHLER
L. A. MERILLAT JOHN L. TYLER

Rabies

The Committee recommends:

1) The identification (licensing) of all dogs and impounding and disposal of all unidentified (stray) dogs.

2) That laboratories engaged in rabies diagnosis use the animal inoculation test in cases negative for Negri bodies, when persons or animals have been exposed.

3) In areas where rabies has been definitely established and the source eradicated, the following quarantine regulations should be instituted around a sufficient area to cover potentially exposed or

infected animals, to prevent its spread: (a) dogs should be confined to their individual premises, escape from which is made impossible, or restrained on a secure leash by a responsible person; (b) all dogs at large in a quarantined area should be considered as stray dogs; (c) immunization as a control measure and the immunized dogs (thirty days after immunization) to be allowed special privileges in regulations 3a and 3b, as the officials may deem advisable.

4) Known exposed animals should be (a) disposed of; (b) securely penned up for at least six months; (c) given antirabic treatment and securely penned up for sixty to ninety days.

5) That the attention of veterinarians be called to the public health and legal obligations in allowing rabid or suspected rabid animals to leave their care.

6) That veterinarians, when giving health certificates for interstate movement of dogs, ascertain to the best of their knowledge the origin of the dog. If from an area where rabies has been recently present, such information should be placed on the certificate for the information of officials at destination.

7) That the Special Committee on Rabies be continued and that it be authorized to meet with the National Rabies Committee.

s/ C. P. ZEPP, *Chairman*
W. G. BROCK — J. L. RUBLE
JOHN H. GILLMANN — H. W. SCHOENING
GLENN L. DUNLAP

Nomenclature of Diseases

The work of the Committee has been hampered by the wide geographical distribution of its members, and the inability to hold a meeting at which there might be free exchange of ideas and suggestions.

The Committee has completed an initial survey of the field of its activity, and the several members of the Committee have an assignment—the job of collecting and compiling the names of diseases.

The work will proceed, and the Committee is confident that a more complete report will be possible next year.

s/ H. C. H. KERNKAMP, *Chairman*
F. R. BEAUDETTE — GEO. H. HART
J. D. BECK — JOHN D. HELWIG
M. A. EMMERSON — H. W. SCHOENING
W. H. FELDMAN — BENJ. SCHWARTZ
FRANK THORP, JR.

Vital Statistics

The Committee had one meeting in Chicago, Dec. 6, 1944, at the LaSalle Hotel. All except two members were present.

The 1944 report was briefly discussed and all agreed that a good start had been made in establishing a system of collecting and compiling vital statistics of animal diseases. It was the consensus of all present that a central agency should be designated and that that agency should be in the federal Bureau of Animal Industry. Tentative plans were made for a member of the committee to go to Washington to obtain the reaction of those directing the Bureau of Animal Industry, in regard to the feasibility of starting a nucleus of collecting vital statistics of animal diseases.

Due to travel restrictions, and many other circumstances which occurred later, this proposed meeting with officials in the U. S. Department of Agriculture was delayed. However, there was some correspondence, which indicated that due to labor shortages within the department it would be unlikely that arrangements could be made to set up even a nucleus of a vital statistics agency at this time.

Even at the time of writing this report, the Committee is still making every effort to carry out the suggestions made at the December meeting, and no doubt will have an appended report to give before the House of Representatives in August.

By correspondence, the Chairman has found much interest in vital statistics of animal diseases to exist among leaders of the livestock industry, and those interested in the welfare of the industry. These interested groups should be encouraged to contribute as much assistance as possible toward establishing a workable system.

We recommend that the Committee be continued.

s/ CHAS. W. BOWER, *Chairman*
A. B. CRAWFORD — L. M. HURT
H. F. DOTSON — C. C. MORRILL
C. C. FRANKS — J. F. BULLARD

Parasitology

In its report for 1943, the Special Committee on Parasitology recommended "that the Bureau of Animal Industry of the United States Department of Agriculture be requested to publish either a bulletin or a series of bulletins containing the following information: (1) check list of parasites of domestic animals occurring in the United States, indicating states in which each occurs; (2) indications by states as to which parasites are most prevalent and which are most serious; (3) species of animals which act as hosts; (4) locations of parasites in hosts; (5) intermediate hosts, if any; (6) keys for identification; and (7) descriptions."

It is obvious that complete compliance with this recommendation would require the writing of a textbook on the parasites of domestic animals of North America, their distribution and economic importance in the geographical area covered, etc. This would be a desirable and laudable undertaking, since no such textbook is now available. Prevailing wartime conditions made it impossible to comply completely with this request. The Bureau, however, agreed to comply with part of this request and permitted the preparation of a check list of internal and external parasites of domestic animals in North America. This check list was prepared but, unfortunately, it could not be completed before May 1, 1944, and it could therefore not be included in the Committee's reports for that year. When completed, it was placed in the hands of Dr. B. T. Simms, then chairman, who in turn sent it to Dr. J. G. Hardenbergh, executive secretary of the AVMA, as part of the annual report of the Committee. Dr. Hardenbergh has promised that it will be published in one of the forthcoming issues of the *American Journal of Veterinary Research*. When finally printed it will, undoubtedly, be found to contain errors and to be inadequate, especially in the part that deals with the geographical distribution of these parasites. The list gives, of course, no information on the economic importance of the parasites found in any given area.

The admitted inadequacies of the check list prompted the chairman to propose to the committee

on Parasitology that, in its annual report, the Committee recommend to the Association that the present Special Committee on Parasitology be abolished and that in its stead there be appointed a permanent committee on parasitology to be charged with the duty of collecting accurate information on the occurrence, geographical distribution, and economic importance of the animal parasites, both internal and external, of domestic animals in North America. The members did not approve of the last part of this proposal. Most of the members, however, feel that the present set-up is unsatisfactory for several reasons. The present committee is a special committee, which means that its entire personnel is subject to change from year to year without notice. It has no assurance of continuity or stability and it can not, therefore, plan any program which will take more than one year to complete. Theoretically, of course, special committees should not have to worry about planning work for the year. According to Article 12 of the Administrative By-Laws of the AVMA, their duties should be assigned to them by the president at the time of their appointment and all that the committees should have to do is get to work. Actually, however, in the case of the Special Committee on Parasitology, this article of the Administrative By-Laws has been more honored in the breach than in the observance. So far as is known, no specific duties have ever been assigned to this committee and each committee has been faced with the problem of thinking about something to do to justify its existence. Since the members are widely scattered and have little or no opportunity to meet to discuss and formulate any program, all committee business must be transacted by correspondence, and unless the chairman or one of the members has a specific plan of action which meets with the approval of the other members of the Committee, the major portion of the year passes before any particular line of action can be agreed upon. Proposals have to be made, objections answered, counter proposals considered, and an inordinate amount of time and reams of paper are consumed in the consideration of simple problems which could and should be settled in a thirty minute meeting. Lack of assured continuity and consequent lack of stability make the work of the Committee erratic and materially decrease its value to the Association.

The Committee, therefore, recommends (1) that if the Association desires to continue a special committee on parasitology, the duty (duties) to be performed by the Committee be clearly and specifically stated by the president, in accordance with the provisions of Article 12 of the Administrative By-Laws of the Association; (2) that the Association seriously consider discontinuing the present special committee and its replacement with a permanent committee, this committee to consist of seven members appointed for three years with provision for staggering retirements. (Staggering retirements are desirable to prevent stagnation and to provide for new men and new ideas.) The persons appointed should represent to the fullest possible extent the different geographical areas of the United States and Canada, and the various phases of the subject of veterinary parasitology. The duties of a permanent committee should be outlined in general terms with considerable latitude given to the members to exercise their own judgment and discretion; (3) that provision be made to reimburse committee members for legitimate expenses incurred in the performance of their committee assignments.

The Committee wishes to repeat the recommendation made by the Special Committees on Parasitology for 1943 and 1944 to the effect that the deans of the veterinary colleges continue to give earnest consideration to the matter of curricular requirements in parasitology.

s/G. DIKMANS, *Chairman*

D. W. BAKER
E. A. BENBROOK
H. S. CAMERON
R. E. REBRASSIER
J. N. SHAW
W. E. SWALES
J. H. WHITLOCK

Food Hygiene

The Special Committee on Food Hygiene, since its last annual report in 1944, has confined its efforts almost entirely to investigating the furtherance of the two recommendations made in that report.

Accordingly, letters of inquiry were directed to the dean of each recognized veterinary college as to the practical meat inspection experience possessed by those members of their staff who were teaching the subject of meat inspection. The deans were also asked to express their views on the recommendation that all men responsible for meat-inspection training in the college be required to have had at least three years of actual meat inspection experience, preferably in a supervisory capacity and not less than one year's experience in making final dispositions of diseased animals and carcasses.

Direct answers to the first question received from seven deans indicated that five teachers of meat hygiene have had from one to several years practical experience in the federal meat inspection service, one had had a year's experience as city inspector, and the seventh gained his experience by observing operations in plants where inspection was in force.

With respect to refresher courses being attended by teachers of meat inspection, one dean thought the idea to be excellent, two favored it, two believed a few days each year spent in visiting a plant where federal inspection was in force would be sufficient, while two wrote in effect that it was their prime purpose to turn out practitioners, graduates with the fundamental knowledge of veterinary medicine, and it was up to an agency to do the training of these individuals.

Inquiry was made of the larger meat packers in Chicago concerning their willingness to coöperate in carrying out refresher courses by permitting classes to observe all phases of operations in their plants, accompanied by a member of the federal Meat or Poultry Inspection Division. Replies from three of these packers expressed a desire to coöperate to the fullest extent and also agreed to permit members of the proposed classes to patronize their plant cafeterias.

The chief of the Federal Meat Inspection Service, and, also, the chief of the Poultry Inspection Service have expressed a desire to coöperate wherever possible, consistent with the maintenance of their respective services, to make available the facilities of their field stations and to give information and instruction in meat inspection and poultry inspection to veterinarians engaged in state, county or municipal inspection.

The formulation of an ideal code or ordinance covering meat inspection to be adopted by municipalities has been suggested. Some attempt has been made to formulate such an ordinance. However, in the interest of effectiveness, we are always led back to the federal meat inspection regulations in so far as they can be enacted and enforced by the interested municipality.

Concerning the Committee's endeavors with respect to poultry, we refer you to the excellent article in the March issue of the AVMA JOURNAL

entitled, "Proposed Pattern for Poultry Meat Marketing", authored by Dr. Edward M. Lynn, a member of this committee.

s/O. W. SEHER, *Chairman*
M. O. BARNES H. E. KINGMAN, JR.
A. C. JERSTAD E. M. LYNN

Milk Hygiene

Due to the fact that this is a new committee of the Association, our report will of necessity be one of recommendations, as well as a brief outline of our activities.

1) Purpose of the Committee:

a) To stress the importance and the necessity of the physical examination of all dairy animals.

b) To appoint a committee to draw up a standard uniform procedure for the physical examination of dairy animals.

c) To recommend that our veterinary colleges recognize the importance of adding new courses to their curriculums that will enable graduating veterinarians to be better qualified to compete with sanitary engineers and food technologists.

d) To stress tuberculosis and brucellosis testing of dairy herds.

e) To publish records and statistics to show that physical examinations of dairy herds, when properly carried out, materially benefit the dairyman, the dairy industry, and the consumer.

2) Activities of the Committee:

Your committee had three meetings during the past year. Dr. H. J. Kroger, who became a member only recently, did not attend the first two meetings.

A letter was drafted and sent by the secretary of the Association to all the state associations, a copy of which is attached to this report.

Several radio briefs and articles on the importance of the physical examination of dairy herds were written and sent to the various state public relations committees, as well as to our executive secretary.

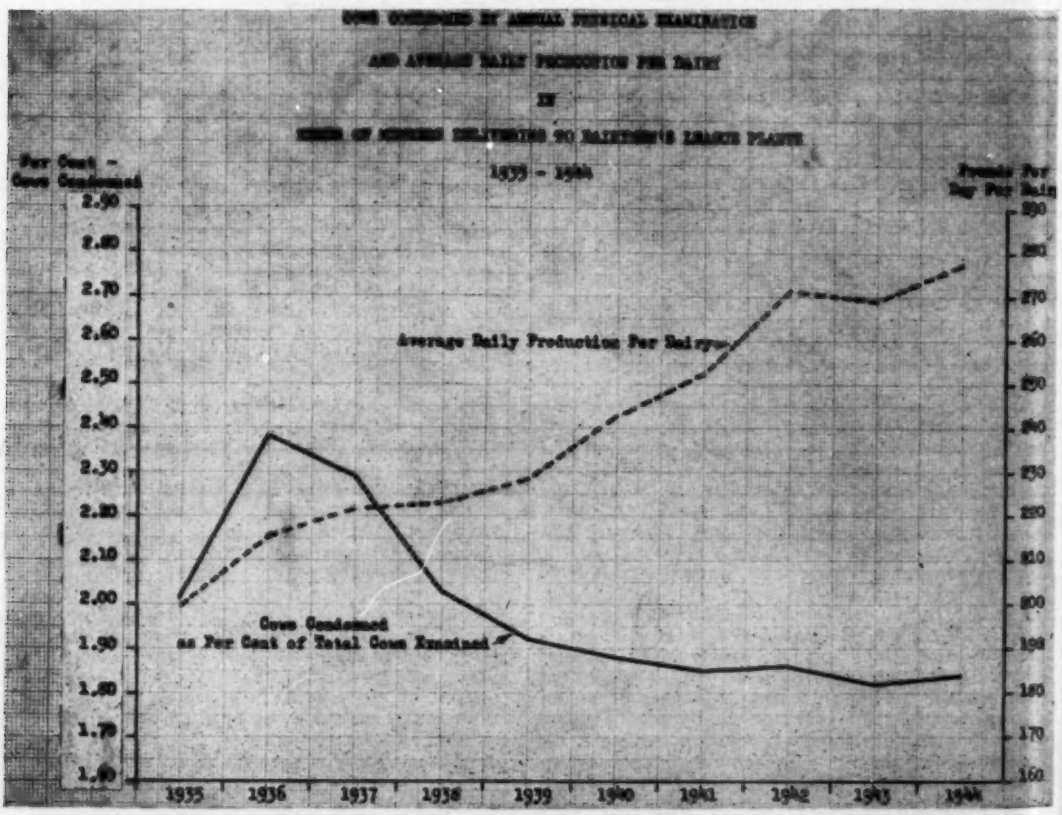
Our committee recognizes that we have an important task to perform and that we shall need the help, guidance, and coöperation of our entire profession if we, as veterinarians, maintain our position and prestige in milk sanitation and other food technological control work.

It is for this reason that your committee offers for the consideration of the Association the following discussion on the topics listed under the "Purpose of the Committee."

1) In stressing the importance of physical examination, it is necessary that all veterinarians take a sufficient interest in milk and meat hygiene to keep up on the latest data in this field and, by so doing, be in a position to combat any false propaganda or claims made by public health officials, sanitary engineers, laboratory technicians, or others.

Members of our profession should point out the benefits of physical examinations to the dairy industry, as it is the chief factor in maintaining high quality milk and milk products. This service is of first importance to the dairymen in that it aids them in maintaining disease-free herds.

We further suggest that we continue our efforts to have qualified veterinarians appear on programs of the various state milk sanitarians' associations,



the American Public Health Association, departments of health, and milk dealers and farm organizations, in order to further promote this important phase of veterinary practice.

2) Your committee has asked several veterinarians who are actively engaged in the physical examination of dairy animals to submit to them their ideas of a uniform procedure for physical examination of dairy animals. This material is available for your consideration.

3) The Committee, from discussions of this problem with other members of our association, and from letters we have received from prominent veterinarians who are interested in promoting the welfare of our profession, finds that there is a feeling on part of these men that our veterinary colleges have not kept abreast of the times in training our graduating veterinarians for this work.

Dr. C. C. Palmer, professor of Bacteriology, and secretary for the Delaware AVMA, states, "If we do not train our students in veterinary medicine adequately, so that they are better prepared than any other group of professional people for this kind of work, how can we expect to ask these positions for our men? Furthermore, not many of our profession will be satisfied to remain in subordinate positions unless there is an opportunity for securing the better paying jobs.

"I believe our best attack is first to put our house in order, if such a thing is needed, by offering thorough and complete training in our veterinary schools in Milk Sanitation. If our graduates are thoroughly trained, they will eventually find employment in key positions, and they will be able to build up their staffs with properly trained and qualified veterinarians. In this way we can recapture and hold the field."

The Committee feels that some of our veterinary colleges are aware of this problem and are taking steps to correct it. However, we submit for your information and study an article published in the May issue of *Food Industries*, "What It Takes To Be a Food Technologist." This shows the trend that the state agricultural colleges are taking in better qualifying their students for positions in the various food industries.

We also feel that this committee should urge that all of our profession ask the veterinary colleges to give due consideration to adding the necessary courses to their present required and elective subjects offered the veterinary students in order to better qualify them for positions in the food industries.

The Committee realizes that the curriculums of the schools of veterinary medicine are filled with many courses essential to the veterinary graduate, yet it is suggested that time now allotted to milk sanitation be devoted to a public-health approach to the subject, rather than to a laboratory-production approach. Too frequently, the course is taught in a dairy industry department of the college by a person who is not familiar or sympathetic with the objectives of milk sanitation from a health viewpoint.

It is further recommended that facilities be afforded by some of our schools of veterinary medicine where postgraduate education may be obtained by those entering this phase of our profession, or by those already engaged in it.

4) The Committee wishes to stress that physical examination also includes tuberculosis and brucellosis testing. There has been negligence in many parts of the country in the enforcement of the three year T. B. Modified Accredited Area Program which has been adopted by the state and federal bureaus of animal industry. This has caused some boards of health to enforce annual T. B. testing of all dairy animals. Many boards of health are trying to enforce or are contemplating enforcing regulations requiring that all milking cows be negative to the agglutination test. This causes great confusion and upsets the calfhood vaccination and brucellosis testing plans that some states have adopted. Many are insisting that adult cows also be vaccinated. Thus, the veterinarian making these physical examinations should make it a part of his routine to ascertain the status of the dairy animals he examines for tuberculosis and brucellosis, as well as for all the other diseases.

We submit for the record the attached graph showing the percentage of diseased animals that have been condemned in 10,500 dairies, and the average production per day of these dairies which have had their herds physically examined annually for a period of ten years. This graph definitely shows a reduction in the percentage of animals condemned each year, and an increase in the average production per day per dairy.

This is only more evidence to substantiate our claim that a disease-free herd must be maintained before high quality and financial return can be obtained by the dairyman.

s/CLYDE L. KERN, *Chairman*
I. A. MERCHANT HERMAN J. KROGER
GEORGE HOPSON

Brucellosis

Except as otherwise stated, this report refers to brucellosis of cattle. Your committee reasserts the principle that all permanent progress in the handling of brucellosis must be recorded in terms of increasing numbers of herds free from the disease, and that every possible means of reducing the abortion rate in infected herds, consistent with that principle, should be searched out and applied. This report is not intended to be comprehensive, but is designed to emphasize a few of the methods by which the stated objective is being attained, and to call attention to certain diverting tendencies that place expedient measures ahead of those that are substantial and lasting.

TEST AND ELIMINATION

Your committee has noted much confusion resulting from a failure to distinguish between "test and elimination" and "test and slaughter." Added to this confusion is that created by failure to distinguish between test and slaughter in selected herds, and test and slaughter applied in all circumstances, especially as a substitute for less drastic methods. Test and gradual elimination together with sanitary measures which we shall enumerate later, and systematic calf vaccination, is probably our most widely applicable plan of control. Test and slaughter on the other hand is best restricted to herds containing, on the initial test, a limited number of reactors (latent cases), and, to the process of hastening the final removal of limited numbers of long-term reactors that sometimes remain too long in herds otherwise clean, thus starting new waves of spread. Test and slaughter is not economically applicable where there is rapid and recent spread in the herd, where large numbers of reactors, especially valuable animals, exist, or where the herd losses are being replaced from outside sources. These facts all emphasize the beginner's need for an initial test of his herd, followed by careful local veterinary advice, enabling him to choose the plan of eradication best suited to the conditions found in the individual herd.

Your committee is keenly aware of the growing tendency to ignore tried and effective sanitary measures, and to regard the term "sanitation" as abstract and vague rather than as specific and concrete. Among the important specific measures that are falling into neglect are: systematic testing of infected herds and the segregation of reactors, especially at calving time; provisions for matern-

ity stalls that can be disinfected each time they are vacated; raising the young stock apart from the main herd, especially as long as the herd contains reactors; avoiding the concentration of large numbers in single units; and strict limitation of purchased additions together with scrupulous supervision of those that are necessary. It is only through the application of these measures that the intense exposure caused by parturient reactors —a degree of exposure which frequently breaks down the resistance of vaccinated animals—can be avoided.

Calf Vaccination.—Calf vaccination is continuing to prove itself of great value, especially when used in conjunction with the sanitary measures just enumerated. It prevents some brucellosis, it delays some, and softens the effects of some that actually occurs thus substantially lowering the abortion rate even in infected animals. It also fails to protect in many instances, and it causes a few persistent reactors. In its use, the most damaging tendencies are to expect and to promise too much, and to cause breeders to neglect sanitary precautions. Especially where cows have been vaccinated, breeders are apt to ignore danger represented by reacting cows.

Adult Vaccination.—There is yet much to learn regarding adult vaccination. Information at hand indicates that systematic vaccination of adults will, in some herds, hold down the abortion rate, but its value in herds into which brucellosis recently has been introduced is less clear. Probably it fails to change the status of cows already infected or those that are destined soon to acquire the infection, but in those destined to take up the organisms months after vaccination, there is reason to believe that valuable, though by no means complete, protection will be provided. Adult animals that overcome the vaccination-reaction are more likely to be protected than are calves showing a like recovery, but in adults the recovery is much less likely to occur.

Your committee is aware that adult vaccination is practiced far more extensively than its proved advantages justify; that it is used extensively as a substitute for effective sanitary measures, and more extensively than it would be if its known advantages and disadvantages were carefully explained in advance to breeders contemplating its use.

Your committee, therefore, recommends that the following statement be presented in writing to all cattle breeders contemplating the use of adult vaccination in their herds.

1) Animals vaccinated as adults, when open, if they overcome the vaccination-reaction, acquire valuable protection. A high percentage, however, continue as persistent reactors. Some protection against actual abortion is provided even among those that continue to react.

2) There is no way of distinguishing between a vaccination-reaction and a reaction caused by exposure; hence, following vaccination of the adult herd, sanitary measures based on the agglutination test must be postponed indefinitely.

3) Raw milk from all reactors, vaccinated or not, represents a degree of danger to man; hence board of health requirements and attitudes, as well as the safety of the individual farm family, are to be considered, prior to vaccination.

4) Failure to obtain beneficial results from the vaccination of adult animals is frequently due to a lack of good sanitation and provision for the isolation of infected animals at the time of parturition. Intense exposure to infection can break down the acquired immunity.

5) Animals from reacting herds, vaccinated or not, sell at a disadvantage in their native states, and their interstate shipment is restricted or prevented altogether.

6) Vaccination of pregnant cows causes some abortions and the danger increases as pregnancy advances. Vaccination applied shortly before calving does not have time to produce actual abortion but uterine infection may take place.

7) Adult vaccination cannot be depended on to check the usual "abortion storm." It helps in some herds, it appears to help in others in which the storm already has spent its force, but it frequently fails completely.

8) Adult vaccination has a wider application in beef herds than in dairy herds, but the objections, except those relating to danger in milk consumption, apply to beef herds.

9) Eradication, or near eradication, of brucellosis will be delayed or prevented altogether by the extensive and indiscriminate use of adult vaccination.

Vaccine Production and Distribution.—The objective is to have a sufficient number of live organisms (from smooth colonies of strain 19) in each dose of vaccine at the time it is administered. Much progress toward that goal has been made in the matter of production, and the Bureau of Animal Industry is to be commended especially for the safeguards it has thrown around vaccine production.

In the distribution and handling of brucella vaccine, there are unfortunate failures to protect our cattle industry. Immunization plays a large and useful part in the handling of brucellosis, yet a high percentage of vaccine now used in the United States is distributed through channels that permit the wide use of an unsatisfactory or dead product and the injudicious use of that which is good. In the first instance, the breeder receives no benefits; instead, he obtains a false sense of security; in the latter, he accepts unnecessary losses and fails to reap the advantages, in his sales, that are attached to cattle officially vaccinated. We recommend that this association employ all possible means to acquaint the public with the true situation, to fix the responsibility for it, and to support those who seek to correct it. The cumulative effects of the use of poor vaccine will be slow to appear, but they will be expressed in terms of heavy losses and diminishing public confidence even in vaccine properly prepared and administered.

INTERSTATE REGULATIONS

Probably there is no phase of the handling of brucellosis so widely misunderstood as the problem of requirements for interstate shipment of cattle. Part of this confusion originates in the superficial assumption that mere uniformity will solve all the problems, as well as in the wholly false assumption that the Bureau of Animal Industry is empowered to formulate such regulations and is equipped to enforce them.

Your committee believes that uniformity in the interpretation of the agglutination test itself is highly desirable, and it is aware that scientifically inconsequential differences in this respect are both galling and unnecessary.

In the matter of actual requirements for interstate shipment, aside from the interpretation of the test itself, your committee subscribes to the principle that uniformity is always to be sought except where it conflicts with effectiveness. Further, it points out that the problems of the several states are not identical; hence there are individual cases in which effectiveness in meeting the requirements of an individual state is to be chosen in preference to mere uniformity.

Your committee is glad to report much progress in making the status of the herd of origin, instead of the test of the individual animal, the chief consideration in determining fitness for interstate shipment, and it recommends wider acceptance of this principle.

BRUCELLOSIS IN ANIMALS OTHER THAN CATTLE, INCLUDING MAN

Brucellosis of swine is being revealed more and more as the cause of serious losses in swine herds. Because of the insidious nature of the disease in swine, diagnosis frequently is long delayed and the disease exists unsuspected in many herds. We cannot be reminded too frequently that *Brucella suis* is highly pathogenic for man, and that he may easily become infected, especially through the handling of fetuses and aborts of infected sows, and less frequently by consuming the raw milk of cows infected with *Br. suis*. Practicing veterinarians need to be especially alert because they are so situated that the protection of their clients and the swine herds owned by them is their especial responsibility. Practicing veterinarians should recognize that no investigation of brucellosis on an individual farm is complete without consideration of all species of animals susceptible to the disease.

RESEARCH

Fortunately, the need for further research on brucellosis is almost universally recognized. Research, alone, already has placed in our hands reasonably effective methods of control, but these methods can be improved in many particulars, and this improvement will come only through research.

For those concerned with providing or allocating funds for research, your committee offers as a guide the principle that places such funds in hands that insure *continuity of effort* in the same organization, and, so far as possible, by the same individuals. In work with a chronic and erratic disease such as brucellosis, allocation of large funds for short-term projects, or hit-or-miss distribution of funds for longer projects are especially to be avoided. Continuous and predictable financial support is essential, within certain limits transcending in importance the size of the fund provided.

s/R. R. BIRCH, *Chairman*

C. P. BISHOP — E. H. GLOSS
G. W. JENSEN — ALFRED SAVAGE
F. H. SUITS — J. TRAUM

Interstate Shipment of Livestock by Truck

Your Committee on Interstate Shipment of Livestock by Truck met in the LaSalle Hotel, Chicago, Ill., Dec. 7, 1944.

One of the major problems which has been giving regulatory officials great concern is the danger of spread of contagious and infectious diseases of livestock and poultry, as the result of unregulated movement of livestock and poultry by truck. This problem, becoming more grave every year, is serious, under present war emergency conditions.

Our sanitary laws and regulations governing the movement of livestock by rail are efficiently handled, uniformly observed—and quite satisfactory. Animal-disease control agencies are exerting every effort to prevent outbreaks of disease among livestock and, in spite of reduced personnel and wartime obstacles, have thus far had no serious outbreaks or wide-spread epidemics. However, we do realize that we, as livestock sanitary officials, and the entire veterinary profession, must be on the alert at all times and take all the necessary precautions to prevent outbreaks and spread of livestock diseases. Your committee realizes there is no greater threat or menace to the health of livestock than the unregulated movement of livestock by truck, as we are dealing with it at this time under present wartime congested transportation.

The 28-36 hour law makes it compulsory for railroads to have a bill-of-lading and record all shipments, giving point of origin, route, and destination. This is a federal Act, the purpose of which is to prevent cruelty to animals while in transit. It is universally and uniformly observed by all railroads. It is the opinion of your committee that this Act should be amended to apply to trucks, making it compulsory for all trucks, transportation companies, and common carriers to carry a uniform bill-of-lading, which would apply to the movement of all livestock by truck intended for interstate movement—and possibly intrastate, such uniform bill-of-lading to be checked by designated officials at all state ports of entry. We believe all regulatory officials should sponsor and support such national legislation, and that we would be in dire neglect of our duties if we did not bring this to the attention of the Congress.

We realize that a large per cent of the livestock is being moved by truck today; and it seems to be "class legislation" or unfair to require railroads to furnish uniform bills-of-lading, health certificates which comply with the sanitary laws and regulations of the state of destination, the 28-36 hour law observance, and not require it of all such common carriers.

Your committee has given full consideration to the over-burdened transportation facilities existing on all railroad lines, due to the war emergency. The matter of additional regulations at this time should be approached with considerable thought and extreme caution. However, it is the opinion of your committee that this matter should be submitted to the Congress with all the necessary information for their investigation and disposal.

s/ J. R. SNYDER, *Chairman*

F. L. CARR — H. C. GIVENS
C. E. FIDLER — VEGO MIKKELSON

Diseases of Dairy Cattle

After several years of dairying under wartime conditions, the problem of maintaining production at a high level becomes increasingly difficult. The Committee wishes to emphasize only a few of the more pressing problems, and to call attention to such measures as have proved feasible under present conditions.

BREEDING PROBLEMS

The prime requisite in economical milk production is regular reproduction, and the greatest losses incurred by the dairyman are those in which the normal cycle of a calf every twelve months is disturbed. Therefore, this branch of large animal practice presents the greatest opportunity for service to the dairyman and to the war effort.

In considering breeding problems several questions are presented: Is there a mineral deficiency? Is there a vitamin deficiency? Is there a hormone imbalance? The solution may not lie in answering any one of these alone, but rather in their effect on one another. It is this interrelationship which taxes the clinician's ability to arrive at a correct diagnosis of the problem. The diagnostic difficulties are increased when the deficiencies mentioned are marginal.

The veterinarian engaged in dairy cattle practice must keep abreast of the new information which will guide him in maintaining reproductive regularity in the herds under his care. Only when he has convinced the dairyman that he possesses this newer knowledge can he interest him in taking advantage of it. As he demonstrates his ability, the call for his services will be multiplied.

Probably the best way to demonstrate ability, and to increase that ability, is to develop a program of monthly visits to one or more herds. Such a

program demands close coöperation between owner, herdsman, and veterinarian, so that all three will be working toward the same end; and the work of one will be integrated with that of the other two.

On the first call, a card is prepared for each animal of serviceable age, and on this card is indicated the present status of the animal: date of last calving, date of last service, and other pertinent data. On each subsequent visit the card is brought down to date, until the herdsman learns to note his own observations as to calving, heat periods, service dates, and other unusual conditions. At the time of examination, the findings are listed along with treatment administered. The more complete the card record becomes, the greater is its value.

Certain steps are important in a program of this kind: (1) Each cow should be examined about sixty days after parturition. If she has passed an estrual period, and if the organs are normal on palpation per rectum, she should be bred at the next heat period, if the interval is normal. If the ovaries are not active, this is the time to begin treatment: massage, removal of the corpus luteum, use of estrogens, or correction of ration. At this time, the vagina and cervix are examined with the aid of a vaginal speculum and light. (2) Each cow should be examined again when she has been bred about sixty days. If she is open, try to determine the cause and correct it. If there is a reasonable doubt, hold her for reëxamination the following month. (3) In herds where considerable trouble has been experienced, or where Trichomonas infection may exist, each cow should be examined about four months after the last service. (4) Cows with an unusual history, and cows with abnormal genital organs should be given appropriate treatment, and withheld from service until normal. (5) Cows showing so-called functional sterility may also need treatment. This includes the normal cows bred to a normal bull without conception, and the heifers bred unsuccessfully to an apparently normal aged bull. When there is an excessive amount of trouble of this nature in a herd, the basic difficulty may be feed, production beyond capability, mineral shortage, vitamin deficiency, lack of hormone, or an imbalance between several or all of these.

This simple program will save enough cows to pay the entire cost of the monthly visits, because it will retain in the herd cows which would otherwise have been butchered, because they were found to be open so late in the lactation period that it would not be economically sound to hold them for another calf.

Herd bulls should be thoroughly examined twice a year, and oftener if the breeding history is unfavorable. The bull is half the herd in reproduction, and one bad bull will cause more trouble than six abnormal cows.

This examination must include palpation of all external genitalia for evidence of inflammation, soreness, and asymmetry; palpation per rectum of the seminal vesicles and vasa deferentia; and finally microscopic examination of the semen for motility, number of sperm, presence of immature cells, morphological abnormalities in the heads, disjointed heads and tails, and defects of any other kind.

Estrogens, the female sex hormones, are being used extensively. Such natural estrogens as progynon B, di-ovocylin, gonadin, follutein, and pituitary gonadotropin are expensive—and therefore not used promiscuously. But it seems advisable to sound a few notes of caution regarding the use of the synthetic estrogens; especially stilbestrol, because it is relatively cheap and may be used too freely. Problems that may arise from injudicious use are varied: (1) Large doses or repeated small doses in lactating cows may reduce milk production and cause udder changes which simulate mastitis. (2) Heifers or cows brought to milk production by repeated injections of stilbestrol seldom breed. (3) Cystic degeneration of the ovaries may result from one large or repeated small doses. (4) The use of estrogen on anestrous cows with cystic ovaries aggravates the trouble. (5) Single, moderate doses are safest. Occasionally in pyometra or mummified fetus, larger doses are needed. (6) Pregnancy rarely occurs if a cow is bred just a few hours after receiving estrogen. (7) Removal of a corpus luteum, and concurrent use of estrogen, results in multiple pregnancy or failure. (8) Estrogen is not a reliable abortifacient in a normal cow safely pregnant, with a sealed cervix.

Trichomonas fetus presents a problem which has been discussed in detail so often that we shall merely mention it to indicate that it must be considered in any discussion of reproductive problems.

Brucella abortus and its place in the program will be left to the Committee on Brucellosis, except to say that our committee fears that many dairymen are being led to believe that vaccination will solve all troubles from this infection, without an accompanying sanitary program and a blood testing program. The three must go hand in hand if the full benefit is to realized.

MASTITIS

A great need exists for definition of this word in the literature, and for clarification of the terminology used in discussing it. To the veterinarian working in the dairy barn, and to the dairyman, mastitis is inflammation of the mammary gland. This brings us back to the cardinal symptoms of inflammation: heat, pain, swelling, and disturbed function. Basically, there is no indication that infection must be present to establish a diagnosis of mastitis; nor that the absence of infection precludes such a diagnosis. If this be kept clearly in mind by all, it will greatly simplify the problem of evaulating treatments and control programs. Degrees of mastitis can be easily tagged (acute, subacute, and chronic; or clinical and subclinical); as can also the types of mastitis (traumatic, streptococcal, staphylococcal, etc.).

Etiology.—In recent years, more and more attention is being paid to trauma as the first stage of mastitis; with injuries to the teat or udder (mechanical, thermal, or chemical) being followed by bacterial invasion or activation. Additional basic work is needed to clarify the onset and progress of inflammation in the udder.

Diagnosis.—There are many diagnostic agents and tests, some suitable for use in the dairy barn, others strictly for laboratory tests. Not one of them is a reliable guide when used alone, and usually it becomes necessary to perform a combination of complex tests to get a reasonably accurate analysis of the condition of a herd: bromthymol blue and similar color tests, Hotis tubes, Breed films, and finally the blood agar plate. We still need a test that will enable the veterinarian to go into a herd and on a single trip accumulate enough information to justify a recommendation for separation, segregation, and elimination of cows in the herd.

Physical Examination.—At the present time, more veterinarians have faith in an examination of the milk produced (stripcup), followed by careful palpation of the udder just after milking, than in any other test or examination. We believe that it is unfortunate that so many experiments have been conducted and reported without any attempt to correlate the physical findings. In general dairy practice, the diagnosis is made in the barn, and confirmed in the laboratory. And when the laboratory fails to confirm the diagnosis, it still stands.

Treatment.—Udder infusions have been in the limelight, undoubtedly at the expense of a well-balanced control program in many cases. The Committee believes that in this instance a good

adjunct to the sanitary program has been rushed forward as the feature attraction. When used judiciously it undoubtedly deserves a place in the control measures, but it is by no means the only, nor even the chief, offensive weapon. As a preventive, its use in the udders of dry cows helps to avoid flareups at calving time.

More study is required to properly evaluate this type of treatment, with special attention to the period of time a recovered quarter remains normal. Is it really cured, or only temporarily improved?

In the meantime, let us not forget the supporting treatment—oral use of sulfanilamide, laxatives, and febrifuges; intravenous injection of stimulants and bacteriostatics; subcutaneous use of biological agents; and local application of heat and rubefacients.

Control Program.—An excellent series of control measures was listed by the Committee on Diseases of Dairy Cattle for 1943 (JOURNAL, *102*, (1943): 455). The 1944 committee listed variations to be used with mechanical milkers (JOURNAL, *105*, (1944):345). The problem confronting us is such that each veterinarian must use such measures and talents as he finds effective, for there is no doubt that the skill of the operator, in a particular operation, is a great factor in his results. Fundamentally, mastitis control is summed up in three important steps: (1) segregation and treatment or elimination of cows with diseased udders; (2) prevention of udder and teat injuries; (3) selection of herd additions to avoid introduction of diseased cows.

CALF NUTRITION

The wartime demand for ever increasing amounts of milk has led to the substitution of other feeds for the milk which nature intended calves to consume during the early weeks of life. Coupled with this problem of raising calves on a minimum amount of milk is the information gained from research work that certain deficiencies are present at birth, or develop quickly after the calf is born.

Vitamin A reserves in the body of the newborn calf are very low, an important fact in view of the prominent place it occupies in nutrition. Calves deficient in this item promptly develop watery eyes and nasal discharge. This head cold progresses to a cough, pneumonia, and scours. Newborn calves require vitamin A as such; they are unable to convert carotene.

Vitamin B reserves are not low at birth, but they dwindle rapidly during the first few days. This is particularly true of the niacin or nicotinic acid fraction. Its nutritional value lies in the fact that it helps to maintain the tone of the intestinal wall. When the calf becomes deficient in niacin, the smooth muscle layers become flabby, the vessels of the mucosa become congested, and the normal flow of contents along the intestine is interrupted. Stagnation results in diarrhea.

Vitamin C reserves are generous at birth, but these are used up quickly because the calf does not possess the power to synthesize this material until the rumen begins to function at the age of 3 or 4 weeks. Its presence within the body is closely linked with the proper function of the guard cells in the mucosa of the intestine, those tiny structures which normally prevent the penetration of the mucosa by infectious agents. A generous supply also helps to avoid navel infection.

Vitamin D is present in ample amounts at birth and is not ordinarily a critical item in the very young. However, even a complete milk diet will not always avoid the appearance of rickets, so that vitamin D may often be supplied to good advantage.

The globulins of immunity, the so-called antibodies or immune bodies, are completely absent at birth, since they do not pass the placental filter. These globulins are proteins of high quality; that is, they contain the essential amino acids in favorable proportion. This is important to the very young calf, because it does not possess the ability to build up these complex protein molecules.

The other requirements of the body of the newborn have not been reduced in importance, but the foregoing ones have become more important by reason of information recently gained. The calf still needs air, water, salt, mineral, protein of good quality, and an abundance of the energy-producing feeds.

All of the elements enumerated are supplied in abundance in colostrum, but, unfortunately, the dairyman has interfered with nature to such an extent that few calves get enough colostrum to meet their needs adequately. Nature intended that the calf should get all of the colostrum produced by the cow, because this colostrum is ten times as rich as normal milk in many of the items enumerated. Under our present plan of raising the calf, it is robbed of all but a small portion of the colostrum, and thereby of the protective substances in which it is particularly rich. This thievery could be prevented by quick freezing all of the colostrum and feeding it to the calf in reasonable amounts, but this is a complicated and costly procedure so it becomes more economical to feed the vitamins in concentrated or even in pure form. Fish liver oils supply vitamins A and D. Niacin can be fed as a pure powder, or the entire B complex can be fed as yeast. Ascorbic acid can be fed during the first ten days of life; later it must be administered parenterally. There is no handy way to feed the globulins in the absence of colostrum, but a generous reserve of vitamin C appears to have a saving or stretching effect upon them.

Because many calves have been "on their own" during this wartime, with scarce manpower and a diverted milk supply, it is likely that when such calves grow up to maturity they will not show an improvement over their dams in size, conformation, or productive ability.

ACETONEMIA OR KETOSIS

This continues to be an important problem to the veterinarian in dairy cattle practice. Some years ago, it appeared to be primarily a disturbance of such a nature that the body was unable to metabolize the fats — more carbohydrate was needed, more ready energy. Many cases responded to glucose intravenously, supported by the feeding of cane molasses or corn syrup. Others responded when chloral hydrate was administered, its effect being to liberate the glycogen stored in the liver.

There were, however, cases which did not respond to treatment of this nature, but did improve markedly when anterior pituitary extract was injected. This still did not produce the desired result in all cases, and massive doses of vitamin A were administered. Results were spectacularly good in some cases, but dismally poor in others. When treatment can be accompanied by a change to new pasture, remarkable recoveries may be seen, but obstinate cases still occur in animals that are pasturing on lush green legumes.

So the search for the underlying cause, and for a means of preventing or correcting the condition, still goes on. Possibly more than one problem is involved, and a more careful differentiation of cases is necessary.

Milk fever appears in varying degrees of severity, and it has been suggested that it may be akin to diabetic collapse in man. This has not been widely accepted, and most cases are still treated successfully with some one of the calcium salts, injected intravenously.

Albuminuria complicates some of the cases of ketosis and of milk fever. The interrelationships of these three conditions and of their several causes need to be discovered and explained.

SARCOPTIC MANGE

This condition is becoming a more serious problem among dairy cows with each passing year. The veterinarian in general practice and the dairyman, especially in the eastern United States, need assistance and advice from the parasitologist on this problem. Adequate dipping appears to be the only solution at this time, and the designing and constructing of the proper type of dipping vat is by no means easy. We look to the Committee on Parasitology for guidance in this field.

This report is by no means a complete survey of all of the problems, but merely a restatement of a few that have been troublesome to the members of this committee, with additional information where developments during the past year seem to justify such comment.

s/ R. C. KLUSSENDORF, *Chairman*
M. R. BLACKSTOCK — A. G. MADDEN, JR.
J. N. CAMPBELL — FAY RANKIN
H. W. HERRIOTT — VILO T. ROSE
E. F. JOHNSTON — R. N. SHAW
W. S. SHAW

Diseases of Beef Cattle

The Special Committee on Diseases of Beef Cattle, in submitting its report, makes the following observations:

1) The Committee feels that a definite need exists for the assembling of information relative to the incidence or causes of losses among beef cattle. It also believes that benefits would be derived from reporting research that is in progress and control methods that have been attempted.

2) The Committee has experienced difficulty in obtaining accurate and comprehensive information relative to the conditions mentioned.

3) The Committee realizes its inability to fulfill the functions expected of it; some better method should be arranged to obtain abstracts and to assemble and summarize pertinent information.

4) The Committee suggests that it might be possible to obtain the reports from the state veterinarian, who is familiar with his locality and the disease conditions existent therein, and that these reports might be used to advantage by this or a similar committee.

At best, the present organization has not succeeded in reaching the objectives set up for it, and the Committee recommends that the officers of the AVMA make arrangements whereby this information can be more satisfactorily obtained and disseminated.

The material in this report on "Anaplasmosis" and "Infectious Icterohemoglobinurea" was submitted by A. H. Groth; that on "Blackleg" and "Poisonous Plants Found in West Texas" by O. E. Wolfe; that on "Grass Tetany" and "Ketosis of Beef Cows" by J. C. Carey; that on "Lymphocytoma" by E. R. Frank; and that on "Artificial Insemination" by H. E. Kingman.

ARTIFICIAL INSEMINATION

Artificial insemination, with its multiple ramifications, has made steady progress during the last four or five years. Experience has contributed much toward satisfactory management of the program in the field. Well-conducted observations and research have made possible the correction of errors in the technique of handling and administering semen.

Marked progress is being made toward better interpretation of certain methods of evaluating the semen specimen. Many pitfalls have been encountered and means to avoid them have been delineated. Fortunately, the practice has been placed in competent hands and the coöperative approach by the animal husbandry group and the veterinary profession has made possible a balanced effort.

The layman has accepted the program as recommended. One hears much less doubt and criticism expressed as time goes on, and confidence in the method is built up. The artificial insemination program has attracted wide attention in both the lay and scientific press. Much of the work has gone beyond the experimental stage and under favorable conditions has been highly successful.

The dairy section has received the greatest benefit, since breeders of these cattle are rapidly taking advantage of its possibilities.

There has been more or less concern relative to its effect upon the sale of bulls. To date, artificial insemination has not offered competition that has seriously affected the bull market, but the fact still remains that it carries with it a potential threat, especially in the lower price brackets. It could be assumed that the price of the most desirable animals will be increased. Desirable characteristics can be transmitted to a large number of offspring, giving opportunity for selection and genetic progress.

Studies of semen have contributed immeasurably toward the detection and correction of the causes of impotency in bulls and infertility in cows. When the time comes that the clinician is able to interpret the semen picture in terms of physiologic and pathologic changes in tissues of the genital system, then a great contribution will have been made to the livestock industry.

Attention has been called to the need for laws governing the sale and shipment of semen. Since it is a biologic substance and cannot be made sterile, there is no telling what infection might be transmitted by it. How far can regulations go in defining an acceptable semen specimen? What qualities other than freedom from bacteria should be insisted upon? For example: There is evidence at hand that a high grade of semen can be diluted as much as 50 times, and that 1 or 2 cc. is a sufficient amount for administration. (Salsbury and coworker, *Dairy Science*, Vol. 28, No. 3, March, 1945.)

A thorough study of the needs and possibilities of protecting the purchaser as well as the distributor of semen and the prevention of the spread of disease should be made. It is the recommendation of this committee that an effort be made to obtain opinions from those engaged in the artificial insemination program relative to the writing of laws regulating the sale and shipment of semen. The following groups should have their say: Owners of bulls, representatives of the different breed associations, representatives of coöperative breeding associations, health officers, and research workers. The veterinary profession has assumed the lead in promoting the best possible relationship between these groups. If laws are drafted they should be designed to provide the greatest possible protection with the fewest restrictions.

No one is in a position to forecast the future of the artificial insemination program. It is here to stay. It is being successfully used. A great good has already been experienced in the improvement of breeds, milk production, and financial status of herds. It is bound to have some deleterious repercussions. There will be failures in management, disappointments in methods, and some of the livestock raisers may be hurt by this method. The whole program, vitally important to the livestock industry, should be considered and investigated in order that it may contribute through profitable and constructive channels.

ANAPLASMOSIS

Anaplasmosis is an infectious disease, chiefly of cattle, that is caused by a tiny parasite which invades the red blood cells and destroys large num-

bers of them, leaving the blood pale and watery. The disease is somewhat like malaria of human beings, but is not transmissible to man. In addition to cattle, the antelope, wildebeest, blesbok, buffalo, camel, deer, duiker, elk, goat, and sheep are reported to be susceptible.

Adult cattle more often develop clinical cases of anaplasmosis, but mild cases and occasionally fatal cases do develop in calves. All breeds of cattle may have the disease. Cattle that recover appear to be immune, but a few authentic cases of a second attack in cows that have recovered have been reported. Unfortunately, all cattle that recover from anaplasmosis become carriers, and blood from a carrier is capable of causing anaplasmosis in susceptible animals if transmitted to them. There is also evidence that a cow, in rare instances, might transmit the infection to her unborn calf, which in turn becomes a carrier. No satisfactory method of detecting carrier animals is known.

Transmission and Occurrence.—Anaplasmosis may be carried from infected to healthy animals by ticks, horseflies, mosquitoes, and probably other biting insects, as well as by unclean instruments in such surgical procedures as blood testing, dehorning, castrating, and vaccinating. The incidence of anaplasmosis seems to be influenced by climatic conditions which favor insects and ticks that carry the infection. In the United States, most natural outbreaks occur during the summer and fall. Cases do appear during the winter and spring in areas where temperatures remain comparatively high.

Timbered or brushy wet areas, where insects are more abundant, are more favorable for development of anaplasmosis than are dry treeless areas.

Symptoms.—Mild cases may show no typical symptoms, but in more severe ones there is loss of appetite, marked depression, tremor of the muscles, and a great reduction in milk flow. In light colored animals, the skin, teats, udder, vagina, whites of eyes, and all visible membranes become pale and yellow. Constipation is quite constant. Sick animals may show a central nervous system involvement, and an inclination to fight. Some cases show a dribbling of urine that is free from blood. The body temperature may rise to 107 F. Later, the temperature drops to normal and may be subnormal at the time of death.

Postmortem Lesions.—The yellow discoloration of skin, teats, and visible mucous membranes is quite constant. The heart muscle is often flabby and may have small hemorrhages on the surface. The blood is thin and watery, the liver is enlarged and yellow, and the contents of the gall bladder are dark green, granular, and gelatinous in appearance. The spleen is often enlarged and soft, and the pulp resembles blackberry jam. The urine may be somewhat less fluid than normal and slightly colored.

Diagnosis.—Acute cases of anaplasmosis can usually be diagnosed by persons familiar with the disease. To avoid confusing the condition with piroplasmosis (tick fever), icterohemoglobinurea (red water disease), and anthrax, microscopic examinations should be made of properly stained, thin blood films. Presence of the small dots in the margins of the red blood cells is considered conclusive evidence of anaplasmosis.

Prevention and Treatment.—In spite of much experimental work with many drugs no specific treatment for anaplasmosis is available. Sick animals should be given shade, plenty of fresh water, appetizing green feed or grain, and protection from insects. Rough and excessive handling should be avoided. A mild laxative may be given to relieve constipation. If the animals do not drink, water may be given by means of a stomach tube.

Every possible precaution should be taken to prevent spread of the disease by unclean surgical procedures, including the most simple ones, such as tipping of horns and drawing blood samples.

BLACKLEG

Blackleg is a fatal disease of young cattle from 6 months to about 2 years of age. It is caused by a soil-borne germ, *Clostridium chauvei*, commonly called the blackleg bacillus. Organisms remain in the infected soil for years and regain their disease-producing faculties under favorable conditions.

Blackleg is the most widespread of the common diseases of cattle, found particularly in the more thickly populated cattle grazing areas. The disease enters the animal body by ingestion of food or water contaminated with the blackleg bacillus, or through punctured wounds or scratches of the skin.

Symptoms of the Disease.—The early symptoms are high fever, loss of appetite, rapid breathing, lameness, and arched back. Afterwards, characteristic blackleg swellings or tumors may be noticed on the shoulder, hip, loin, chest, or any other part of the body. These swellings are at first hot and painful; later they become cold and painless and on pressure may crackle like paper under the skin. This is caused by the formation of gas by the blackleg bacillus. Blackleg is rapidly fatal. Death occurs in twelve to forty-eight hours after the first symptoms appear.

Postmortem Lesions.—After death, the animal swells or bloats very rapidly and a dark bloody froth exudes from the body openings. When the swellings are incised, a foamy, dark colored fluid oozes out. The affected swelling is a dirty brown to blackish in appearance, very friable, and often smells like rancid butter. The blood is dark red but coagulates readily. The lymph glands nearest to the tumors or swellings are greatly enlarged and hemorrhagic. All the vital organs are more or less swollen and hemorrhagic.

Diagnosis.—Blackleg is easily diagnosed, provided the swellings and the characteristic crepitating sounds are present. If these swellings are absent or can not be found, blackleg may be confused with malignant edema or anthrax, and in this case it would be advisable to ask for laboratory examination of infected tissue.

Prevention and Treatment.—Vaccines for the prevention of blackleg have been greatly improved in recent years. Those produced at the present time include blackleg bacterin, natural aggressin, cultural aggresin, cultural vaccine, and tissue vaccine. A vaccine is a preventive and not a curative agent, and should be used before the disease appears in a herd. The immunity produced depends on the kind of vaccine that has been used. It should last at least twelve months or better.

Medicinal treatment of animals after infection has so far proved unavailing. Antiblackleg serum may be used at the onset of the disease, but recoveries are rare. Vaccination is the only practicable and effective means of protecting cattle against blackleg.

GRASS TETANY

Grass Tetany occurs in cows pastured on heavy, mature grasses. In Iowa, it is more prevalent when seed forms in the blue grass or when cows are pastured on a heavy growth of timothy and clover.

Symptoms of the Disease.—A cow's muscles begin to twitch, her eyes roll back, and she goes down and has spasms characterized by much kicking and struggling. A cow lies on her side and her legs become so rigid that they cannot be flexed enough to make her lie up on her brisket.

Cause of the Disease.—The exact cause of this disease is not known, but it is thought to be a form

of food poisoning which produces a nerve irritant that brings on the muscular spasm.

Treatment of the Disease.—The administration of a certain sedative drug effects a cure by quieting the nerves, relaxing the patient, and giving the cow a chance to eliminate the accumulated nerve toxins. Intravenous solutions are also administered into the blood stream to detoxify and relax the animal. If a cow does not respond to treatment within twenty-four hours, her chance to recover is unfavorable.

INFECTIOUS ICTEROHEMOGLOBINUREA—RED WATER DISEASE OR HEMORRHAGIC DISEASE

This is an infectious disease of cattle, and occasionally sheep, caused by a specific germ known as *Clostridium hemolyticum*. The urine of affected animals is a dark red or port wine color, clear but foamy and is responsible for the designation, "red water disease." So far as is known, the disease occurs only in rather restricted districts, especially in the poorly drained mountain and valley pastures of the Sierra Nevada, Cascade, and Rocky Mountains, and in the coastal regions of Louisiana and Texas. It has been reported also in central Mexico and in Chile.

Symptoms.—The onset of the disease is usually sudden. There is loss of appetite, a marked drop in milk production, cessation of rumination, and constipation. The back is arched, the abdomen tucked up, and the animal moves with great reluctance. Breathing is shallow and there is grunting with each step. The urine is a dark red color, clear but foamy. The color is due to the red coloring matter of the red blood cells which are destroyed in large numbers. There are no intact red blood cells in the urine. The temperature varies from 104 to 106 F. in the early stages, but drops below normal before death.

From 40 to 50 per cent of the red blood cells have been destroyed when the red color appears in the urine. Death is due to oxygen starvation resulting from the wholesale destruction of the red blood cells.

Postmortem Appearance.—The most characteristic finding is a large area of destroyed tissue in the liver. This area, which may be 2 to 8 inches in diameter, is often mottled, and usually lighter in color than the normal liver tissue. It may be located in any part of the liver.

Extensive hemorrhages are found on the membranes lining the body cavities and covering the internal organs, as well as in the tissue under the skin. There is also a bloody inflammation of the intestine.

Treatment.—An immune serum has been developed which is quite effective when given in large doses to animals that are just beginning to show bloody urine and before the temperature has dropped below normal.

Prevention.—A bacterin is available which should be administered by a qualified veterinarian. It affords protection for the average pasture season under western conditions. In Louisiana, it must be administered twice during the year.

KETOSIS OF BEEF COWS

Ketosis (acetonemia) is a disease of both dairy and beef cattle. Although it is most prevalent in dairy cattle, it occurs quite frequently in the heavier milking cows of the beef breeds.

There are two forms of the disease. In the acute form, a cow in good flesh suddenly develops a staggering gait and soon goes down and is unable to regain her feet. In the chronic form, the cow loses her appetite almost completely, gradually becomes emaciated, develops a staggering gait, and finally becomes paralyzed, as in the acute form. The breath has a sweetish, fetid odor which is characteristic of this disease.

Ketosis may occur a few days after calving, as a single ailment, or it may occur in the heavy milking beef cows as a complication of milk fever. It occurs any time during the lactating period, or even during the dry period up to the time of calving.

The cause of ketosis is a disturbance of sugar or glucose metabolism. The liver produces glycogen or blood sugar. When a cow is suffering from ketosis, there is an abnormal liver function and the blood sugar level goes down. This may be due to an error in the diet, continued over a long period of time.

A test of urine of cows apparently suffering from ketosis can be made by a veterinarian, and the presence of ketones in the urine determines that the cow has ketosis.

Treatment.—Glucose must be supplied by intravenous injection, together with calcium in certain cases, to overcome the paralysis. Large doses of vitamin A are sometimes given hypodermically on the assumption that its absence has caused liver damage, which can be remedied by supplying vitamin A in large doses. Corn molasses or Karo syrup should also be given, either in feed or as a drench. A cow may be unable to rise for several days, but with good care and proper treatment a majority of cases recover.

LYMPHOCYTOMA

The above condition occurs quite frequently in cattle, and there is no indication that one breed is more susceptible than another. Animals of all ages may be affected, but the average age for a large number is 6 years. The Meat Inspection Service of the Federal Bureau of Animal Industry reports that 1 out of every 8,500 cattle condemned has lymphocytoma. All breeds of cattle seem to be affected, the percentage varying with the breed population.

Lymphocytoma may be defined as a cancer affecting the lymph glands and other portions of the lymphatic system. The symptoms shown by the affected animals vary in different individuals. Practically every lymph gland in the body may be affected with the cancerous tissue. The first symptom usually observed is an enlargement of some or all of the external lymph glands. The affected glands may vary from a slight increase in size to as large as a grapefruit. In another case, the external glands may not be affected, but one or both eyes may look as though they were being pushed out of their sockets. These symptoms are produced by the cancerous tissue that is formed in the orbital cavity back of the eyes. In some cases, the affected animal may bloat at infrequent intervals without any change in the feed. These individuals may have a good appetite, but there is a rapid loss in condition. On postmortem examination, there is usually found a rather extensive involvement of the digestive system so the food cannot be digested properly.

Usually, the abomasum is most extensively involved, and its walls may be several times their normal thickness. When the digestive system is affected, the appetite may be normal, but there is a pronounced disturbance in the functioning of the affected organs. Some animals become paralyzed in the hind legs, due to pressure on the spinal cord by the tumorous tissue in the vertebral canal. The circulatory system may become affected when some of the heart muscle is replaced by lymphoid tissue. This may be manifested by irregular heart action and abnormal heart sounds. In some cases, the interference with circulation may be due to large masses of the lymphoid tissue pressing upon the heart or some of the blood vessels.

In some animals affected with lymphocytoma,

there may be a combination of symptoms. Some may show the protrusion of the eyes and be paralyzed in the posterior limbs, or the digestive tract may also be affected. In other cases, the digestive tract may be affected and also the circulatory system. At the present time, we do not have any successful treatment for lymphocytoma.

POISONOUS PLANTS FOUND IN WEST TEXAS

Poisonous plants have caused extensive losses to livestock in many parts of the United States since the days of the early settlers in this country, and they still constitute a major economic problem in numerous areas, especially in the western range states, including West Texas.

The most common poisonous plants seen in our practice will be described as to the symptoms they produce and the treatment or preventive measures used.

Cocklebur (Xanthium sp.).—This plant, growing along creek and river beds and waste lands, starts to come up in the early spring, usually after a rain. Only the first or primary leaves of the seedlings are poisonous to cattle. A very few of these sprouts will kill a cow, and death usually is sudden. We have never seen an animal before death. On postmortem, we found cyanosis of the mucous membranes and a severe gastroenteritis.

No curative treatment of value is known at the present time. Prevention consists of keeping animals out of pastures where cockleburs are growing. The most dangerous period is in March, when the seedlings come through the ground. After three or more leaves appear, they are harmless and cattle do not seem to like them.

Locoweed (Astragulus sp. and Oxitropis spp.).—Locoweed grows in large numbers on our western plains and animals eating it are called "locoed," after the symptoms develop. Cattle will eat the stems and leaves of these plants for several weeks, and sometimes months, before symptoms develop. The principal symptoms of loco-poisoning are constipation, rough coat of hair, emaciation, incoördination in walking or running, and peculiar actions, such as turning to the right, setting one foot crossed over the other, going to sleep in standing position. Animals that have been "locoed" have a craving for this plant and they may be seen going over pasture hunting for it.

There is no treatment after the animals show visible symptoms, but other stock should be moved from this particular pasture or some will develop the symptoms. Eradication of this weed from large areas is out of the question because the cost of the work would be much greater than the benefits derived.

Oaks, Shin (Quercus spp.).—Oaks or shinnery is mostly found in sandy pastures or hills in West Texas. This plant is poisonous to cattle in March and April, when it is budding. Cattle can eat the buds for a week or two before any harmful symptoms are noted. The first symptom is constipation, the color of the feces being dark green. Later a diarrhea will develop and the nose will scab and flake off. Emaciation and weakness are followed by death.

Prevention.—Prevention consists of keeping herds out of pastures where shinnery grows, especially in March and April; after the leaves develop cattle will not eat this plant. Oaks pastures are good during the fall and winter and cattle thrive on the acorns on the bushes. No treatment of any value is known.

Rayless Goldenrod (Applopappus heterophyllus).—Rayless goldenrod is found along irrigation ditches and lake beds. Cattle consume the leaves and stems of this plant. After eating for several days, a marked weakness and trembling is noticed, especially after forced exercise. As the poisonous principle in goldenrod is eliminated through the milk, great care should be taken not to drink the milk from cows that have foraged on goldenrod. I have reports of calves which died after the mother succumbed to goldenrod poisoning.

Treatment.—Treatment consists of removing cattle from pastures where goldenrod is found; large doses of mineral oil may be of value. All undue exercise should be avoided. Eradication of the weed can be attempted by hoeing or burning the weeds.

Carpet Weed (Kallstroemia hirsutissima).—This weed grows principally in fields that have been cultivated, and it spreads out, as the name implies, like a carpet—sometimes 8 to 10 feet in diameter. Cattle eat this plant when they are turned loose in the pasture after harvest. The symptoms are knuckling of the pastern joints, followed by paralysis of all extremities. Animals have a normal appetite even after they are down for several days and finally die from complications. If the animals are removed from these fields in time, they will recover in several days without after effects.

Why do animals eat poisonous plants? is often asked by ranchers and stock men. The answer is: Overgrazing of pastures is the greatest single factor in causing losses from poisonous plants, and long periods of drouth contribute to overgrazing. Another cause of losses is found when cattle are shipped or driven for long distances without sufficient feed and then turned into pastures that would not be considered dangerous under normal conditions. Poisonous plants usually grow in rather close association with forage plants and are readily accessible to range animals. When cattle are allowed free choice they select the more desirable plants in preference to the poisonous ones, but hungry animals will feed on whatever forage is available—including poisonous plants.

s/ H. E. KINGMAN, *Chairman*
J. C. CAREY — E. R. FRANK
A. H. GROTH — O. E. WOLFE

Diseases of Sheep

A discussion of the disease problems of sheep falls naturally under three headings: the problems of the farm flock, the range flock, and the lamb in the feedlots.

The farm flock constitutes the largest group and is distributed over the whole area of the United States. The range flocks, second in importance, are found in the mountainous regions of the west and northwest and in the plains areas of the southwest United States. Lambs in large numbers in the feedlots are, for the most part, found in the rich irrigated lands of the west and in some areas of the midwest. Many of the diseases are common to all three groups, but each group presents certain special problems and conditions.

No attempt is made to discuss the various infectious and noninfectious ailments of sheep. A few diseases are mentioned which are responsible for a considerable annual death loss in sheep, concerning which our present information is either meager or incomplete. Those diseases which are suggested appear to be worthy of experimental investigation by the various state experiment stations, the United States Bureau of Animal Industry, the practicing veterinarians, and all others interested in prevention and control of livestock diseases.

FARM FLOCKS OF SHEEP

Probably internal, and in some cases external, parasites are responsible for the greatest economic loss in farm flocks of sheep. Considerable information has been added in recent years in the use of

new anthelmintics and the rôle of adequate nutrition in the control of internal parasites, but certainly research in this field should continue.

Ketosis in pregnant ewes in apparently well-nourished farm flocks of sheep might well warrant further study.

Listerellosis, while not a major problem in so far as incidence is concerned, is a challenge to our epidemiologists. Who knows how the infective agent is transmitted to the flock or from one animal to another in the flock?

There is more and more evidence that ewes receiving a ration deficient in vitamin A give birth to weak lambs which are quite susceptible to navel infections and to enteritis. In more extreme cases, abortions may result from a vitamin A deficiency.

RANGE SHEEP

Poisonous plants are responsible for as great a death loss among range sheep as any one factor. It is true that many plants have been classified and catalogued as poisonous. Others are suspected of being poisonous, but there is still a very large group concerning which we have no specific information. Even among those plants that are known positively to be poisonous, we have no idea, in many instances, what the injurious substance may be. And, in most of the instances where the poisonous property is known, we have no effective antidote or other practical means of treatment. This problem is a challenging one and will require the coöperative efforts of veterinarians, botanists, and physiological chemists.

Foot-rot is a common condition of the range. It is so prevalent in sheep in certain mountainous areas of the west that it is sometimes necessary to abandon the range for a season or more. This condition has been known and described for a long time, and *Actinomyces necrophorus* has been described as a causative agent. There is no doubt but that this organism is present in the lesions produced by the disease. Additional work, however, is in order to demonstrate beyond a doubt that it is the primary and sole agent, and not merely a secondary invader as is often the case. An effective means of control, treatment, and prevention is also badly needed.

There is also a venereal disease of rams which is sometimes spread to the ewes during the act of service, which is generally thought to be caused by *Actinomyces necrophorus*. This disease is first noticed by the sheepmen at the time they turn the bucks in with the ewes at the beginning of the breeding season, and the discovery is made that the rams are useless. There should be some experimental work on this condition, and an attempt made to find the causative factor. If this were known it might be possible to control and satisfactorily treat the affected animals.

Pregnancy disease is by no means confined to ewes in the farm flock, for it is often seen under range conditions. It is usually more difficult to handle on the range among large numbers of ewes than it is on the farm, where the numbers are limited and facilities lend themselves to proper handling.

Progressive pneumonia (lunger's disease) is a common condition in range ewes and is responsible for a considerable annual loss. The cause is not known. It is customary for the sheepmen to destroy the affected animal. Investigation along this line is needed and stands the chance of being productive.

Stiff-lamb disease is frequently observed in certain bands of sheep, especially those that are run on the government reserve at altitudes of 9,000 feet or higher. It is also seen, with less frequency, in sheep running at lower altitudes. Considerable information is available in the literature on this condition, but more work is unquestionably needed.

Parasitic diseases are not a particular problem in range sheep, with two exceptions; namely, liver flukes (*Fasciola hepatica*) and fringed tapeworms (*Thysanosoma actinioides*). Much information is needed on the liver fluke, particularly with new pharmaceutical agents that have been made recently available in determining the effects they have upon the flukes and also upon the host. The problem of the fringed tapeworm, which is present in a large percentage of mountain-raised lambs, remains practically unsolved. No new information of any practical consequence has been added in the last fifty years. This should be an attractive problem for a veterinarian versed in the field of parasitology.

The use of dilute cube-water dip for eradicating the sheep tick, *Melophagus ovinus*, is becoming increasingly popular with sheep raisers of the Southwest. This safe, inexpensive and easily prepared sheep dip, when utilized in accordance with the recommendations of the U. S. Bureau of Animal Industry, has proved very effective in completely eradicating sheep ticks from both range and farm flocks.

FEEDLOT LAMBS

The diseases of feedlot lambs can be divided for discussion into those that are incident to shipping and those that are incident to feeding. Lambs born in May are usually taken from their mothers in October and shipped immediately by train over long distances to the feedlots. As a result of weaning, and because of the fatigue due to shipping, the resistance of these lambs is lowered, and since they are exposed to many contagious diseases in transit, after a period of about two weeks in the feedlots certain diseases commonly appear among them. Many of these diseases could be prevented if the stockmen could be educated to see that the trip is broken, that the lambs are allowed to rest, and that they receive proper nutritious food each time they are unloaded. Full coöperation of the transportation companies on these matters would be of material value.

The most common of the diseases that appear in lambs soon after they arrive in the foodlots is a condition known as sore mouth (contagious ecthyma). This disease is preventable by proper vaccination, but unfortunately too few sheepmen take advantage of it. Every effort should be made to see that this exceedingly worthwhile product is more widely used by lamb feeders.

Coccidiosis is a devastating and common disease that appears usually before the twenty-first day after the lambs arrive in the lots. The etiology of this disease is well known. It is also known that if the lambs are properly managed during the first twenty-one days, the disease can easily be prevented. Once it makes its appearance among the lambs in a feedlot no practical and satisfactory treatment or method of handling is known. Research with various drugs that are capable of practical administration for the control and cure of this condition is badly needed.

Hemorrhagic septicemia is another disease that seems to follow shipping. Much experimental work has been done on this disease, and literally volumes have been written. However, the true causative factor is probably yet to be discovered, and the pasteurella organism is probably merely a secondary invader. Experimental work in this field is sorely needed and should be productive.

Among the diseases that are believed to be incident to feeding is overeating (enterotoxemia). The cause of this disease undoubtedly is *Clostridium welchii D.* In some lamb-feeding sections this disease is responsible for more death loss in lambs than all the other diseases combined. Much remains to be accomplished before we have a practical and sound method of controlling this disease.

Lambs are usually turned into fields of fall wheat in certain areas. These lambs develop a con-

dition that appears to be comparable to that commonly described as grass tetany. This condition appears to be due to a lack of magnesium, and perhaps also calcium and possibly other minerals. The method of handling this condition and still allowing the lambs to remain on the wheat fields is not thoroughly understood. This also warrants detailed investigation. In fact, the rôle of minerals in the feeding of lambs is not well understood. It probably varies in different areas and is dependent upon the minerals that are indigenous to the soil in the area concerned. Certainly, we know too little about the mineral content of various hay and cereal crops grown in different localities.

Urinary calculi are altogether too common in feedlot lambs. It is well known that a lack of vitamin A in the diet will produce this condition. No doubt there are other factors that are responsible in whole or in part for this condition. Too little is known about them. Additional experimental work is needed.

Fringed tapeworm (*Thysanosoma actinioides*) which is mentioned under range lambs causes the sheep feeder no little concern. It is generally believed that this parasite is responsible for death loss only in extreme instances. Many sheep feeders feel that it is responsible for a heavy loss. Research work is needed to determine the intermediate host of this parasite, to seek medicinal agents that might expel or destroy the tapeworm, and also to prove that the infestation of the sheep with this parasite is not usually responsible for the death of the animal.

s/ FLOYD CROSS, *Chairman*
W. L. ANDREWS N. G. CORBETT
I. B. BOUGHTON THOMAS CRISPELL

Diseases of Swine

From the information available, it appears that there is a need for raising a larger number of swine this year than in any of the past ten years. With the end of the war in Europe bringing the liberation of large numbers of people who must be fed by the United Nations, it becomes the responsibility of members of the swine-raising industry and the veterinary profession to increase the number of pigs born if possible, but, more urgently, to raise to market age a greater percentage of the pigs farrowed.

The losses in pigs from farrowing time to weaning age are enormous. Figures show the overall loss—those which die before reaching marketing age—to be about 37 per cent of the pigs farrowed. This figure is broken down to show that about 25 per cent of the pigs farrowed die before weaning. It is not difficult to see that our position in this picture is to work with the swine producer in reducing this enormous loss in pigs during the first eight or ten weeks of life.

Another part of this picture, which has not been given sufficient consideration by the veterinarian, is usually referred to as "sterility," but in this report it will be called infertility. We have no definite figures on the loss in swine production by the failure of the sows to conceive, but it is believed by those few interested in this aspect of swine production that if the figures were available, they would be astounding.

Therefore, the veterinary profession should interest itself not only in the problem of saving pigs after farrowing, but also in the factors of breeding, and the correction of conditions which interfere with conception and the farrowing of large, strong, healthy litters.

Reports by the committees in 1943 and 1944 contained valuable information relative to the production and care of young pigs, and we recommend that these reports be carefully reread. We are taking the liberty of including in this report certain parts of these reports. Certain problems have been so well covered they will bear repeating, and this will lend to them emphasis and importance.

Your committee feels it is not necessary to make reports on hog cholera, erysipelas, enteritis, dysentery, salmonellosis, and influenza at this time. Although this group of diseases does cause large monetary losses to the swine industry, it is believed that greater attention should be given to other problems which may not be so well known in the various parts of the United States.

BETTER BREEDING

We quote from the report of the 1944 committee [J.A.V.M.A., *105*, (Nov., 1944):350]:

"The improvement of swine by better breeding should be the constant aim of both client and veterinarian. It is sometimes necessary to take into consideration the possible influence of heredity in attempting to account for pathologic conditions or undesirable features encountered in herds of hogs. In these instances, considerable judgment and diagnostic skill may be required to avoid serious errors. Occasionally, little or nothing can be done to overcome heritable defects, except to discard the animals that are transmitting them. It is well to remember that the desirable, as well as the undesirable, features may be largely fixed by heredity.

"The geneticist and specialized breeder will be concerned with long-time breeding programs. The veterinarian can greatly assist the farmer by instructing him as to the animals that are obviously unfit for breeding, such as those which transmit hernia. The infectious disease which is of particular importance in this connection is brucellosis. The possibility or likelihood of dysentery being carried over to the new pig crop by the breeding stock should also be taken into account. The selection of thrifty gilts from large litters of good-sized pigs and the mating of healthy animals that are not too young are simple principles that can be expected to give good results. In hogs, as in other livestock, the male breeding animal should be the best obtainable."

INFERTILITY IN BROOD SOWS

Infertility in sows has been accorded meager attention in the literature. Further research should be conducted, because we are often confronted with the problem and are unable to obtain information on the subject. There are no available figures which indicate the number of services per pregnancy in swine. This is vital knowledge which should be obtained before adequate comparisons can be made and a foundation laid for the study of the problem, such as obtains in bovine fertility research. Also, from the disease standpoint, our lack of normal reproduction rates in swine prevents the making of any real comparisons.

Diseases of the female genitalia may be based on prenatal influences and/or infection. Prenatal influences resulting in cystic ovaries, occlusions of the fallopian tubes, uterus unicornis, atresia, and stenosis of the vagina are congenital abnormalities that have been noted and may have greater significance than we think on the infertility rate in gilts selected for breeding.

Diseases due to infections—as abscess of the ovaries, pyosalpinx, and endometritis—have yielded corynebacteria, staphylococci, and streptococci; and brucella is suspected by some. Vulvovaginitis and vulvitis may result in temporary sterility until removal of the cause or causes, such as moldy corn, and one or more microörganisms that may complicate the condition.

Brucellosis is an apparent cause of reduced

fertility in sows. The evidence points to a vital difference as compared to the bovine picture—the boar may be a potent spreader. According to Dykstra, sows affected with brucellosis quite consistently lose the infection in about five months.

Swine influenza, if contracted by sows at breeding time, is a suspected source of reduced fertility. If the attack comes during pregnancy, fetal mortality is increased.

Low fertility in sows cannot readily be separated from embryonal and fetal mortality, in which 10 to 30 per cent of all ova which become fertilized die in various stages of development up to the time of parturition. Lowered semen quality definitely results in small litters, which often are attributed to infertility in the sow.

From an endocrine viewpoint, observations indicate that at least two types of disturbance may be prevalent: (1) Some gilts fail to come in heat, and the cause is not stated authoritatively. (2) Some gilts come in heat, but fail to conceive readily. This type of disturbance is sometimes overcome by breeding in late estrum, as swine may ovulate late in the heat period.

Practitioners, with only meager investigational foundation, often resort to the use of endocrine preparations. Stilbestrol apparently will induce estrum in some sows that have failed to come in heat. Based on field experience, it appears that some sows conceive during such heat. Pregnant mare serum administered on the eighteenth day following a previous heat period is credited by some practitioners as having value in settling sows that fail to conceive promptly.

The evidence available points to higher fertility rates of sows and to better livability of pigs, when good rations are fed to the sows during gestation. Good pasture definitely is beneficial.

In the field of vitamin therapy, it should be emphasized that wheat germ oil has been overplayed in its relation to both prevention and cure of sterility in breeding swine. In no case has vitamin E been shown to be beneficial for reproduction in any class of farm animals.

Scours in Suckling Pigs

This condition should be divided into two phases: (1) The first phase includes the period from birth to 2 or 3 weeks of age. This condition may develop within twenty-four to forty-eight hours following farrowing. Death losses are relatively high at this age. It may be that the greater percentage of loss at this time is due to a deficiency in the diet of the sow during gestation, although outbreaks of what appears to be an infectious disease occur in newborn pigs. The pigs are born with one or more deficiencies, which must be corrected immediately after farrowing. It is possible that a low vitamin-A diet may so deplete the colostrum of the sow that the proper protection which it affords the newborn pigs is lacking. There are probably other nutritional elements which are lacking in the colostrum, which are essential to the health of the newborn pigs. Factors independent of these deficiencies are the ingestion of substances by the sow, before farrowing or shortly after, which may be secreted in the milk and completely upset the digestive tract of the young animal. Other factors which must be considered in this phase are the sanitation and cleanliness of the surroundings and the quantity and quality of the sow's milk.

In the latter stages of this phase, if the milk diet has not been completely satisfactory for the young growing pigs, it may result in the development of an infection within certain litters and—the spreading of it to others, as an infectious type of the disease.

2) The second phase may begin at 3 to 4 weeks of age and continue for some time. Heavy death losses and unthriftiness which occur in pigs 3 weeks or more of age may be traceable to errors in feeding the pigs, or the appearance of bacterial or parasitic infections. When investigating these types of losses in young animals, it is necessary to give careful consideration to all the points enumerated previously, together with special attention to the past history of the owner as a swine husbandman, the breeding stock, the equipment used, and the feeding of the breeding sows before and during gestation, as well as that period immediately following farrowing.

Suckling Pig Anemia (Nutritional)

This is now quite generally recognized by veterinarians as an important disease, when pigs are kept indoors. The fully developed disease usually is not difficult to diagnose. It is doubtful, however, if the importance of preventing anemia is fully appreciated, even now. Each spring a good many cases occur in which the disease has been allowed to develop to some degree, with consequent damaging effects on the pigs.

Anemia is responsible for some of the unthriftiness and retarded growth which occur in young shotes. Another likely aftermath of anemia is "bull nose" or so-called necrobacillosis of the face and head. Anemia may greatly increase the susceptibility of growing pigs to bull nose. The complete or nearly complete prevention of anemia in baby pigs is an important element in the foundation of profitable pork production.

Icteroanemia

Icteroanemia is one of the sporadic diseases occurring in swine. The name is based on the pathologic features of the disease—icterus and anemia are conspicuous lesions found at autopsy. In addition, the spleen is greatly enlarged. This latter feature, together with microscopic findings in the red blood cells, has resulted in the use of the term anaplasmosis-like disease. Thus far, most of the cases have been observed during the summer or fall months. It is not certain if there has been much change in the prevalence of the disease during recent years. As yet, no special method of prevention or control has been developed, since it appears to be sporadic and self-limiting. The specific cause and manner of spread have not been determined. It may become more important in the future.

Leucosis or Lymphoblastosis

This condition has been observed occasionally during the past few years. This disease causes pathologic changes in swine similar to those which occur in birds with fowl leucosis. The spleen and liver may be enormously enlarged, and the lymph glands are usually greatly increased in size. Leucosis in swine is of interest mainly because of its potentialities—it may become an important disease in the future. A corresponding disease in poultry has become one of the most important causes of death losses in mature fowl. The liver lesions of leucosis in swine may give rise to some difficulty in differential diagnosis between it and so-called pitch poisoning. The involvement of the lymph nodes and spleen, and the formation of tumorous masses in leucosis, usually render the diagnosis fairly easy.

Mange

Sarcoptic or common mange is a contagious skin disease of swine, which costs swine growers enormous sums of money each year. There are no specific data on the losses, but the stunting in growth, delayed fattening, and the causing of some deaths may result in a loss of two dollars per head in infected herds.

This parasitic skin disease can be eradicated by properly treating all swine—young and old—in herds that show evidence of infection. This disease is also preventable by enforcing strict disinfecting, cleaning, and sanitary measures. It appears that well-nourished herds withstand an attack of mange far better than herds which are undernourished.

If mange enters a herd, it is not very contagious during the summer months while the animals are on pasture, but during the inclement weather of the fall when the animals are housed and in close contact, the spread is very rapid.

On the premises where mange has previously existed, it is advisable to clean and disinfect houses or enclosures thoroughly, before admitting the herd. It is also advisable to dip all animals before permitting them to enter the house. This will control the infection, but if a few animals should develop the disease regardless of these precautions, they should be removed immediately, retreated, and if necessary, the entire herd dipped.

Herds that are free of the disease should be protected by preventing other swine entering the premises. If animals of unknown history are brought to the premises, they should be segregated for a time, or all animals brought to the place should be dipped before placing them with a mange-free herd.

In treating, lime and sulfur, or oils have been the most commonly and most successfully used. The entire animal body should be treated, especially the head, face, and ears. Sows advanced in pregnancy should not be dipped or oiled within two weeks of farrowing, or too soon after farrowing. When the pigs are 3 weeks old, the sow and also the pigs may be dipped or oiled without undue risk.

SWINE BRUCELLOSIS

Brucellosis is one of the infectious diseases which we feel should be included in this year's report. It appears that this disease is becoming more prevalent, or that it is being recognized more frequently. The latest estimates which have been obtained from the government-inspected abattoirs show that the incidence of this disease is about 1 to 3 per cent in swine going to slaughter. This percentage may be low, for there are many infected breeding animals, especially the pure-breds, that do not go to the government-inspected abattoirs. We believe it would be advisable to survey these breeding animals for the presence of this disease.

Brucellosis in swine is decidedly unlike the corresponding infection in cattle, in that it seems to be more of a herd disease than one affecting the individuals within the herd. This infection may account for many of the losses in baby pigs—losses which have not been recognized in the past.

It seems to be more difficult to control brucellosis in swine, with our present methods, than to control it in cattle. The agglutination test is less reliable in swine, except for a herd test. Some difficulties are encountered here because there are so many individually infected animals that do not give a positive blood test, at least at periods of the disease when the causative organism can be isolated from such swine. The agglutinin titer will not be as high in swine as in cattle, and too many times the low titer is disregarded.

Frequently, brucellosis is introduced into a clean herd by an infected boar; the sows may become infected through the digestive tract or the organism may enter the abraded skin. There is evidence also to suggest that the young nursing pigs may become infected while nursing. In swine, the organism may localize in any lymphatic tissue, and in some other tissues in the body—it does not seem to select principally the supramammary lymphatics or the udder tissue.

Brucella suis is the only known member of this group of organisms capable of infecting swine, and it is also capable of infecting cattle, and man. There is one case on record of transmission from swine to cattle and then to man, which completes the cycle.

Control Methods.—Control of this disease by blood testing and slaughter can be accomplished, but the desired end is not reached as readily as in other species. Vaccination as a control measure has not, as yet, been found to be satisfactory. In fact, strain 19 vaccine has shown little or no protection in controlled experiments.

Two plans have been suggested, and the one to be selected depends upon the type of breeding herd under consideration. In the commercial breeding herd, it appears that positive reactors should cause the entire herd to be considered as an infected unit, and the entire breeding stock be sent to slaughter. This herd should be replaced with breeding stock, both males and females, selected from herds definitely known to be free from the disease. Breed only clean or negative gilts to negative boars.

In the pure-bred herd, especially in instances where it is desirable to maintain blood lines, the whole breeding herd should be considered an infected unit and should be isolated or segregated, and this plan strictly enforced. Pigs from the infected sows may be weaned and placed on clean ground. Periodic blood tests on these weaned animals must be made up to and during the breeding period, and all reactors, even in low dilutions, must be removed from this clean unit. By this plan it is felt that a clean, nonreacting herd of young swine, both males and females, can be established, at the same time maintaining the desired blood lines. The results obtained in the latter plan will depend on the strict enforcement of segregation, repeated blood testing, and replacement of the old infected herd with negative males and females.

POTENTIAL SWINE DISEASE DANGERS

It would not be proper to close this committee report without once again referring to the report of the 1944 committee under the heading "Potential Swine Disease Dangers," which includes a concise discussion of vesicular exanthema, vesicular stomatitis, and foot-and-mouth disease. Fortunately, none of these diseases at present run rampant through our swine population, but it is necessary that we keep ourselves familiar with these conditions to recognize and quarantine on the premises any one of these virus diseases if they should appear.

The Committee wishes to recommend that the Research Council of the American Veterinary Medical Association place on its agenda more detailed investigation of the problems in the swine industry, which cause such tremendous losses to the baby pig population between farrowing and weaning.

s/FRANK BREED, *Chairman*
L. P. DOYLE JOHN B. BRYANT
L. A. GRAY T. L. STEENERSON

Diseases of Horses

Because of the travel restrictions and other exigencies of these war times, the Committee did not meet, but limited its efforts to the preparation of items to be used by the public relations counsel in preparing radio scripts and other releases of various types.

The following subjects were discussed by members of the Committee:

Conditioning Work Horses.
Respiratory Diseases of Horses.

Rabies Among Farm Horses.
Bot Eradication.
Care of Horses' Feet.
Encephalomyelitis.
Tetanus Immunization.
Toothache in Horses.
Shipping Losses Among Mules.

s/ W. F. GUARD, *Chairman*
J. L. HOPPING — P. G. MACKINTOSH
JOHN L. GADD — D. L. PROCTOR

Diseases of Small Animals

The treatment of diseases of small animals during the past decade has become highly specialized, and ideas about how some of the problems can best be handled have crystallized to where a definite policy should be pursued, and the endorsement, support, and encouragement of this policy by the AVMA are needed to help promote better small animal practice, which will benefit both veterinary medicine and the service rendered to owners of pet animals.

The Committee asks that the report of the 1944 committee be reviewed, for the present committee wishes to reëmphasize two of the recommendations made a year ago (1944).

1) "The development and formulation of practical plans for parasite control in dog-breeding kennels. When developed and proved, such plans should be made available to veterinarians and dog breeders."

2) "There is lamentable neglect of research for the benefit of the dog. Plans should be formulated which will provide funds necessary for research and education to the betterment of small animal medicine."

It is our hope that this association will see fit to make plans to accomplish these objectives.

In small animal medicine, there is need for standardization of methods, both in surgical and medical treatment. The profession in many instances has not put into practice many of the proved techniques available. As early as 1923, practical, simple, aseptic surgical technique was demonstrated but it has never had profession-wide adoption, either by the educational institutions or by the practitioners. These facts have caused certain groups to show concern regarding our progress (Farquharson: A. A. H. A. meeting, New York, 1945, and *Proceedings of American Animal Hospital Association*, Aug. 24-25, 1944, page 37). Many young graduates in veterinary medicine, applying for employment in small animal hospitals, have not had training in aseptic surgical technique, and the hospital has to teach this routine before the graduate can ably assist in surgery.

There seems to be need for recognized standards in the methods commonly employed in such procedures as rabies prophylaxis and distemper immunization, as well as aseptic surgical technique. If this association will set up recognized minimal requirements, it will do much to unify practice procedure so that the same principles may be applied in all parts of the continent. This is being done with astonishing success in the medical field.

There is need and demand for moving pictures and lantern slides to illustrate these procedures and techniques. There seems to be increased interest for their use for instructional purposes at meetings.

The Committee makes the following recommendations:

1) That plans be set up to develop and formulate practical plans for parasite control in dog-breeding kennels.

2) That plans be formulated to provide funds necessary to further research and education for the betterment of veterinary medicine.

3) That this committee be continued and a subcommittee be appointed to study plans to promote and develop such things as aseptic, surgical technique, and the standardization of procedures. It is thought that if any great improvement is to come, it must come from the recently trained young veterinarian. This would mean that educational institutions must take the lead in presenting this material.

4) That plans be undertaken to provide lantern slides and movies to illustrate improvement in aseptic, surgical technique and standard procedures.

s/ WAYNE H. RISER, *Chairman*
C. E. BILD — S. E. PHILIPS
H. S. MACDONALD — K. W. SMITH

Diseases of Wild Animals

Disease conditions affecting wildlife, or that are carried by wildlife to other species, continue almost completely unabated and insufficient effort is being made to develop a complete understanding of their nature, the processes of dissemination and their control. Wild species living an unrestrained life may serve in a very actual capacity in transporting infectious organisms of all kinds from one area to another. The scavenger behavior of certain mammals and birds promotes the spread of all types of pathogens, not only as victims of the disease but also as reservoirs of infective material and as mechanical transmitters.

DISEASES OF WILDLIFE AFFECTING DOMESTIC STOCK AND MAN

Rabies has been occurring in such frequent outbreaks in wild carnivores that some workers in wildlife conservation have concluded that it is constantly present in some areas and periodically assumes epizoötic proportions in foxes, coyotes, and other animals. If this is true, it may spread to the less aggressive wild forms and to domestic stock. Attacks by rabid foxes and other lesser animals on man are reported.

Evidence of the virus of encephalomyelitis has been recognized in a wide range of wild birds and mammals. Some investigations lead to the belief that one or several of these may be the usual reservoir for the virus under natural conditions and responsible for the outbreaks among horses.

Malignant edema has been diagnosed in deer ranging in cattle-raising country. Buffaloes and elk are known to be frequent victims of brucellosis.

Tularemia, one of the most widely distributed diseases of human beings acquired from wildlife sources, is well known to all workers in human and animal diseases in this country, but it continues unchecked in rabbits and other wildlife.

Tuberculosis has frequently been diagnosed in deer, foxes, other wild mammals, and birds, including such edible species as wild ducks and pheasants. The wildlife was probably originally infected from domestic stock or man.

Blackleg, anthrax, and foot-and-mouth disease have been identified as active infections of the large wild ruminants in this country.

The protozoan parasite, living in the blood stream of ducks, *Leucocytozoon anatis*, causing very high mortality in the young, is equally destructive to both the wild and domestic groups. It cannot be said that either is the natural host but it is evident that either group, when infected, is a danger to the other in close proximity.

The array of wild species instrumental in spreading parasitic infections to domestic stock and to man vary from the lowly crayfish, serving as the intermediate host of the lung flukes of swine, to the rabbit, bear, and other vertebrates capable of conveying various tapeworms and roundworms to domestic animals and to human beings.

It has been established that wild birds harbor the same species of gapeworms and some of the intestinal worms and coccidia as those found in domestic fowl, with which they associate. The free flying of these birds makes their range of transmission possibilities almost limitless.

The cattle fever tick, *Boophilus annulatus*, has been recognized as a parasite of deer in the southern states, and has been a troublesome factor in complete eradication of tick fever in cattle.

THE POLLUTION FACTOR IN WILDLIFE DISEASE CONTROL

The low resistance of wild species to diseases of crowding and incidental pollution causes very high losses in wild animals maintained in zoölogical parks, game farms, and fur farms. Public funds are usually available for the maintenance of reasonable sanitation in zoölogical gardens, although the unnatural environment requires careful attention by scrutinizing attendants.

Disastrous losses on game farms and fur farms have frequently resulted from pollution among quail, pheasants, silver foxes, and minks. Pollution on fur farms, involving the massive infestations of ascarids and hookworms, is the most common. On game farms, coccidiosis and the effects of food spoilage are the more devastating factors.

In all wild species in confinement, where all of their feed is supplied by attendants and no natural selection of feed is possible, extensive losses from nutritional deficiencies involving mineral and vitamin shortages, especially, are encountered. Creditable progress in correcting this condition has been made during the last few years. However, general knowledge concerning wildlife nutrition is inadequate. This is a fertile field for research.

Research on the diseases of wild animals in the past has been sporadic and done, for the greater part, by groups concerned with animals of monetary value, such as fur-bearers. These groups, as a result of their endeavors, have made noteworthy contributions from a practical as well as a purely scientific standpoint. If the veterinary profession is to attain and maintain its rightful position in the field of science and fulfill its obligation to the livestock industry and public health, it must deal with disease problems of all forms of animal life, both domestic and wild. The advancements in science are necessitating the use of animals other than the long-used common laboratory animals. It is the duty of the veterinarian to have knowledge of the physiology and pathology of all forms of animal life to enable research workers to make the fullest use of the information embodied in these forms. Unquestionably, the solutions to certain unsolved problems in the higher forms of life lie in the lower and more primitive forms. Little by little, we are discovering an interrelation between disease of man and domestic animals and wild animals. Wild animals, of the greatest variety from all parts of the world, are bound to be of extreme value in the study of diseases of man and domestic animals.

Infectious diseases may be disseminated through the medium of wild animals in interstate and international shipment. Regulatory officials should constantly bear this in mind.

Conservation of the nation's natural resources includes its animal life. Consequently, it is highly important that the necessary precautions be taken to protect the wildlife from disease hazards. No conservation program would be complete without such measures. The veterinary profession is obligated to take part in conservation programs, and to stress the importance of disease protection and eradication to all organizations concerned with conservation.

The veterinary profession can materially contribute to world education and recreation. The preservation of animal species in zoos, national parks, and preserves is dependent upon the animals being disease-free. It is reasonable to believe this country will be called upon to restock both foreign and American animal collections lost during the war. These collections are of untold recreational and educational value to millions of people. Here again, it behooves the profession to put forth its utmost in disseminating knowledge of wild animal diseases for the preservation of animal life and to prevent the spread of diseases.

CONCLUSIONS AND RECOMMENDATIONS

It has not been attempted to call attention to all of the interchanges of disease between wild and domestic stock. These few examples are mentioned to illustrate some of the destructive diseases and the wide range of their nature.

Never in the history of America has there been a greater need for an adequate program for disease control in all animal life in order to best conserve the economic production of meat and other animal products. Never in the history of America has there been an adequate program in effect for the control and investigation of disease in wild species.

Your committee attempts to point out in a forceful manner the possible sabotage of our animal life by diseases in wild species, which are inimical to the wild groups, domestic stock, and to man.

Never has there been a greater need for a maximum production of meat and leather. Our farmers are endeavoring to fulfill this need against serious odds of labor and machinery shortage. We point out a drain on our livestock production possibilities from diseased wildlife in the country.

Little improvement appears to be possible in wild-

life disease research and control under existing conditions. Federal and state laboratories now established are reasonably adequate. Incentive, and, in some cases, legal authority are the limiting factors.

Covering legislation is a necessary first step in making possible an adequate overall program. Because of the similarity of all animal diseases, and because of the facility with which these diseases are transmitted between domestic stock and wildlife, it is urged that the Committee on Legislation be instructed to approach this matter immediately with the view of procuring enabling authority to extend the activities of qualified organizations so as to embrace coverage of all animal diseases.

It is urged that the American Veterinary Medical Association use its influence to have responsible agencies concern themselves with wild animal research. Universities should encourage and make available opportunities for such research whenever possible. A major program for wildlife research should be undertaken by the groups now concerned with animal and human disease research.

Veterinarians should concern themselves with conservation of wildlife and be instrumental in keeping wild species disease-free.

S/L. J. GOSS, *Chairman*
F. D. MCKENNY J. E. SHILLINGER

Motion Picture Library

Wartime conditions have greatly curtailed the activities of the Special Committee on Motion Picture Library. Practically all of the film manufactured during the year has been channeled to the military forces and there is little likelihood that priorities on film distribution will be eased for many months to come. Consequently, projects that this committee had hoped to develop have been held in abeyance.

The nucleus of the Motion Picture Film Library has been established and limited use of available films has been made by the membership. Titles of the films and the number of times each film was requested from the library are shown in the appended list. It is worthy of note that approximately 50 per cent of the requests for films concerned general practice; 33 1/3 per cent were for human films dealing with the Stader Splint; and about 20 per cent were for films suitable for lay audiences. No doubt these percentages would change if a greater number of films were available for distribution.

The Committee has listed a large number of suitable films available for presentation to professional and lay groups. A catalog of these is on file at the AVMA office.

Prospects are bright for the acquisition of copies of several new privately owned films covering phases of general practice. In order to procure these copies, it will be necessary that funds be provided for the Committee's use in defraying the necessary expense of duplication.

The Committee feels there is much to be accomplished in the future development of the Motion Picture Film Library, and there is no doubt but that many new films will be made as soon as the War Production Board permits wider distribution of this critical material. Therefore, we respectfully recommend:

1) That the Special Committee on Motion Picture Library be continued.

2) That the chairman of the Special Committee on Motion Picture Library (1945-46) be informed as to the amount of the appropriation for the development of the library, so that the Committee may plan its work for the coming year.

S/ CHARLES B. KRONE, *Chairman*
A. G. BOYD W. C. GLENNEY
A. G. DANKS E. C. KHUEN

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Motion Picture Films Available from AVMA Library

1) "Surgery of the Bovine Eye" by Dr. James Farquharson, Colorado A. & M. College. For professional audiences and veterinary students. 16 mm.—About 1,000 ft. Silent. Color. Rental Price: $5.00 plus shipping charges. *Requests, 4.*

2) "Pullorum Disease Control" prepared by California State Department of Agriculture. For professional audiences, veterinary students, and poultry growers. 16 mm.—About 800 ft. Silent. Color. Rental Price: $4.00 plus shipping charges. *Requests, 3.*

3) "Control of Bovine Tuberculosis in California" prepared by California State Department of Agriculture. For professional and lay audiences—principally the latter. 16 mm.—About 600 ft. Silent. Color. Rental Price: $2.00 plus shipping charges. *Requests, 1.*

4) "From Range to Range" prepared by California State Department of Agriculture. A Story of California State Meat Inspection. For lay audiences principally. 16 mm.—About 1,000 ft. Silent. Color. Rental Price: $2.00 plus shipping charges. *Requests, 3.*

5) "Avian Pneumoencephalitis" prepared by California State Department of Agriculture. For professional audiences and veterinary students. 16 mm.—About 300 ft. Silent. Color. Rental Price: $2.00 plus shipping charges. *Requests, 1.*

6) "Vesicular Stomatitis of Swine" prepared by California State Department of Agriculture. For professional audiences and veterinary students. 16 mm.—About 200 ft. Silent. Color. Rental Price: $1.00 plus shipping charges. *Requests 1.* (Note—The Pathological Division, Bureau of Animal Industry, USDA, Washington 25, D. C., has a new film on "Vesicular Disease of Animals"—1 reel, 16 mm. Sound. Color. Professional groups may obtain loan without charge except for return shipping charge.)

7) "Skeletal Fixation by the Stader Splint—Fractures of the Tibia." A Navy training film prepared for Bureau of Medicine and Surgery, U. S. Navy, by Bureau of Aeronautics. For physicians and surgeons; a good demonstration of the mechanics of the Stader Splint in human fractures. 16 mm.—About 1,000 ft. Sound. Black and White. Rental Price: $2.00 plus shipping charges. *Requests, 3.*

8) "Skeletal Fixation by the Stader Splint—Fractures of the Os Calcis." As above. 16 mm.—About 600 ft. Sound. Black and White. Rental Price: $2.00 plus shipping charges. *Requests, 4.*

9) "Winged Messengers." From British Information Service, showing use of pigeons as military messengers. For any audience. 16 mm.—About 300 ft. Sound. Black and White. Rental Price: $1.00 plus shipping charges. *Requests, 1.*

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Postwar Planning

The Committee has studied several problems since the writing of its first report (J.A.V.M.A., *105*, (1944): 358. Some of the things studied during the previous year have been continued, others have been initiated.

SUMMARY OF REPLIES TO QUESTIONNAIRE SENT TO VETERINARY CORPS OFFICERS

First question: "How many years of veterinary service did you have previous to entering military service?" There were 1,115 responses to this question with the following distribution: Up to one year 388, two years 111, three years 112, four years 101, five years 71, six years 86, seven years 65, eight years 37, nine years 30, ten years 25, and more than ten years 89.

Second question: "Do you expect, after being mustered out, to return to your former work?" There were 805 replies. Of these, 556 planned to return to former work, while 249 answered "no." On a percentage basis, approximately 70 per cent plan to return to the former employment.

Third question. There were 1145 votes for types of work other than former work. These votes showed the following distribution by percentages which compare favorably with studies made by Brumley and Charters[1], by Haring[2] of alumni of Washington State College, and by Murray[3].

Occupation	Veterinary Corps %	Brumley Charters %	Haring %	Murray %
Practice	58.5	42.0	49.0	65.0
Milk, dairy, and meat inspection	12.57	31.1	25.1	17.0
Teaching and research	9.59	8.2	3.8	8.0
Biologic manufacture and sales	1.57	0.2	0.54	7.0
All others	17.77	18.5	21.56	3.0

The number in the Veterinary Corps choosing practice might be divided into general practice 38.6 per cent, large animal practice 9.8 per cent, and small animal practice 10.8 per cent. Under the other headings, there were groupings made which would appear to include all those in the occupations listed. The three studies varied considerably in groupings made, so that certain regroupings were necessary for making comparisons.

Fourth question: "Do you anticipate doing college work after leaving military service?" brought forth ambiguous replies when compared with question 5, so will not be considered.

Fifth question: "Will you be interested in refresher courses, graduate work?" received a total of 880 votes of which 749, approximately 85 per cent, indicated interest in refresher courses and 131, approximately 15 per cent, in graduate work.

Sixth question: "If you answered "refresher courses" under 5, of what duration should such courses be? What subjects should be included?" There were 752 responses of which 458 or 61 per cent favored courses of three months or less in duration; 196 or 26 per cent, those of six months; and 98 or 13 per cent, courses of more than six months duration. Choices of subjects numbered 2,427, and were made with approximate distribution as follows:

SUBJECTS	NUMBER	%
Pharmacology	380	15.65
Medicine	359	14.79
Surgery	349	14.37
Clinics	252	10.38
General (incl. recent developments)	231	9.52
Pathology	222	9.20
Bacteriology	129	5.31
Large animals	103	4.24
Small animals	87	3.58
Anatomy	66	2.72
Obstetrics	59	2.45
Physiology	54	2.24
Public health (incl. milk, dairy, meat inspection, disease control)	33	1.35
Parasitology	27	1.10
X-ray	19	0.78
Biochemistry and animal nutrition	18	0.74
Poultry	18	0.74
Miscellaneous	12	0.49
Hematology	9	0.37

Seventh question: "In what section of the country would you prefer to take a 'refresher course'? To do graduate work?" There were 1,039 who showed preferences for parts of the country in which to take refresher courses, divided as follows: East 146; East Central 62, North Central 31; Northeast 78; Northwest 15, South 98; Southwest 2; West 133, West Central 451, no choice 23.

There was a total of 187 preferences for graduate work distributed as follows: East 40, East Central 8, North Central 3, Northeast 14, Northwest 13, South 12, Southeast 2, West 15, West Central 66, no choice 14.

Eighth question: "Do you have special skills, such as bacteriologist, pathologist, pharmacologist, physiologist, public health, other ....?" produced a variety of responses. There were 464 indications of special skills distributed as follows: bacteriologist (virologist 1) 56, pathologist 63, pharmacologist 8, physiologist 18, public health (meat, milk, dairy, food inspection) 236; others, anatomist 5, animal diseases 6, artificial insemination 7, breeding diseases 8, food chemist 3, general practice 3, parasitologist 8, poultry diseases 5, small animals 7, surgery 11, and 2 each for brucellosis, biological products, chemist, histotechnician, nutritionist; and 1 each for animal husbandry, biochemist, chemist, clinician, endocrinologist, geneticist, hematologist, military, research, and wildlife.

In response to choice of specialities for postwar employment by those filling out the questionnaire, there was a total of 577 selections, distributed as follows: anatomy 4, army remount 1, animal nutrition 3, artificial insemination 10, bacteriology 56, biochemistry 2, manufacturer of biological products 3, salesman for biological products 1, biologist 1, breeding diseases and breeding problems 4, cattle-practice 2, clinical and laboratory procedures 7, dairy inspection 7, disease control 10, endocrinology 3, food inspection 4, general practice 32, genetics 2, histology 3, horse practice 1, large animal practice 10, meat inspection 6, medicine 4, obstetrics 1, parasitology 8, pathology 109, pharmacology 15, physiology 23, public health 195, reproduction 1, research—cattle 1, serology 1, small animals 18, surgery 23, teaching, ambulatory clinic 1, therapeutics 1, wildlife 1, x-ray 2, zoological curator 1.

On November 3, 1944, and April 20, 1945, some 300 copies of lists of the names of the men making the choices summarized above were sent to those who it was thought might be interested in the future employment of the veterans.

[1]Brumley, O. V., and Charters, W. W., 1939. A Curriculum in Veterinary Medicine. Ohio State Univ. Studies, Bu. Ed. Res. Monographs, No. 23.

[2]Quoted from letter from Kenneth G. McKay, March 20, 1945.

[3]Murray, C.: Veterinary Education—National Need. Cornell Vet. *29*, (1939): 53-60.

PROPOSAL TO PROVIDE A MORE EFFECTIVE VETERINARY SERVICE

The Committee prepared a plan which covers the suggestion that funds be provided from some taxable sources within each state from which practicing veterinarians may be paid to participate in the public projects of animal-disease control and eradication. Closely related to this plan is one in which state veterinarians will be provided for marginal and/or submarginal areas. Attention is called to the possibility of the United States Bureau of Animal Industry (on recommendation of the state veterinarian and of the state United States Bureau of Animal Industry inspector in charge being able to commission practicing veterinarians on per diem pay to test cattle for brucellosis and tuberculosis. Perhaps this latter plan may be found feasible in some marginal and/or submarginal areas, assuming that the veterinarian so employed would have some income also from practice. A more complete statement covering this plan is to be published in the JOURNAL.

MUNICIPAL MEAT INSPECTION

An outline for the preparation of municipal meat inspection ordinances involving antemortem and postmortem veterinary inspection was prepared. It was later referred to the Special Committee on Food Hygiene.

INTERNSHIPS

The Postwar Planning Committee of the AVMA, during the year 1943 to 1944, made a survey to obtain ideas for the improvement of veterinary medicine. The advisability of internships for the recent graduates was discussed with 115 selected groups and local associations. Ninety, or 79 per cent, of these groups favored the proposal. Because of the great interest shown, a subcommittee composed of Drs. W. H. Riser, chairman, L. A. Dykstra, A. H. Groth, B. J. Killham, G. W. Lies, and K. W. Smith was appointed to give the problem further study.

The Subcommittee solicited opinions and suggestions from groups and individuals regarding the advisability of a required internship for the recent graduate. From the information received, it was concluded that this was hardly the time to initiate a compulsory program of this nature, but rather that the recent graduate should be encouraged to become associated with a practitioner as an assistant on a voluntary basis.

A survey shows that from 50 to 90 per cent of graduates now spend from three months to one year as assistants to general practitioners immediately following graduation. In the last graduating class from a midwest college, 48 graduates entered practice, 30 of whom became assistants to practitioners. They said that this experience was most instructive and worthwhile for it served as postgraduate training. On the other hand, the 38 per cent of the group who opened offices for themselves stated they experienced difficulty in becoming adjusted to the problems of an independent practice.

These data would indicate that this alliance of the recent graduate with an established practitioner would provide helpful training and therefore it should be encouraged. It is believed that much valuable instruction can be secured from successful and established practitioners in the handling of business problems, the art of meeting the public, and in the performance of professional work.

It is felt that the AVMA can contribute greatly to the advancement of the profession and to the service it offers by continuing studies of this problem, eventually looking toward making a period of internship a prerequisite to license to practice.

ARTIFICIAL INSEMINATION

A statement showing the attitude the veterinarian may take with regard to the mass inseminative work in cows was formulated (J. A. B., H. L. F.) and published under the title of "The Artificial Insemination Problem" in the *Veterinary Student*, 7, *(1944)*: 97-98.

REFRESHER COURSES FOR VETERANS

The colleges of veterinary medicine of the United States have outlined plans for the presentation of refresher courses to returned veterans of the Veterinary Corps. A discussion of the provisions of the so-called "G.I." bill, Public Law 346, 78th Congress, and of Public Law 16, 78th Congress, was prepared. This discussion, together with a statement covering what the veterinary colleges are doing and plan to do, was presented to the various veterinary periodicals for publication. Much time was spent by the chairman in an attempt to secure interpretations of the provisions of the laws, Public Laws 346 and 16, as they may be applied to veterans of the Veterinary Corps. Many points at the time of writing this report have not been interpreted; however, the statement and discussion published cover the main items.

PLANNING

The Committee, in pondering postwar veterinary matters, has attempted to raise the curtain and view the future. In doing so, certain things impress it as needing our most serious thought.

In contemplating the service our profession is offering and will be offering ten and twenty years from now, do we have a goal? Shall it, like Topsy, just "grow up" or will its growth be directed by its members?

We are past the day when a man may take a course of training leading to a degree in veterinary medicine, then isolate himself in a community, live off that community, and make no contribution to his profession. Our profession is no longer in the diaper and jumper stage when some one else plans its activities. It is maturing; with maturity comes responsibility to give the best possible service; and that service includes all the things veterinarians are capable of doing.

Neither can the profession afford to permit its members to assume a *laissez faire* attitude. The wisdom of the profession is no greater than the sum of the knowledge of its members. Its duty is to see that members are continuously kept abreast of advances in veterinary science and related sciences, always actuated by the thought of offering better service. There is need, it seems to the Committee, that some method of carrying information to members should be methodically followed. The current literature of the profession contributes much, but there seems to be a need for a more direct method. An extension veterinarian whose duty would be to contact the members of the profession, to carry to them material which would keep them abreast of the times, should go a long way in meeting the need. It is felt that an extension veterinarian to veterinarians may be able to bring about such a unity of professional purpose and action that the resulting increase in service offered will overcome the ill-advised movements to take over veterinary activities by certain groups.

Maybe an award should be given each year to the one who, in his field, makes the greatest contribution to the advancement of the profession. Would such an activity cause others to ask "What has he that I do not have? I can go him one better." Is this logical?

ECONOMIC CONDITIONS AND GROWTH

The outlook for business in the immediate postwar period appears to be good. In a study on

"War, Cash, and Corporations" (*Fortune*, April 1945) there is this statement, "The United States corporation is probably in better shape than it has been in years, if not in decades." Agriculture, too, is well favored. These factors would appear to provide an opportunity for veterinary medicine. Its chief concern is with animals owned by the business man, by the employee of business, and with the livestock (including poultry) industry. The future progress of the profession will be directly related to the degree in which the needs for veterinary service are met in the days immediately ahead. Very appropriate to the coming days is a portion of an editorial, "How Many Is Too Many Veterinarians" in the March, 1945, JOURNAL, which states: "Although spreading a competent veterinary service all over the country and in every niche where useful, in order to replace the untrained and near-trained engaged therein, is not going to be an easy task, it should nevertheless be the minimum objective of veterinary medicine, for if we do not take our task that seriously, the people, as usual, will have to go on training replacements for positions (duties) we have failed to fill. The American people will not slumber in the presence of their 9 billion dollar livestock industry and the ramifying industries that stem therefrom.

"It seems that the veterinary profession, here and elsewhere, has to choose between growing in numbers and affluence and staying small and mediocre, or, perhaps, expendable."

EMPLOYMENT OF VETERINARIANS

It is ever imperative that the veterinary profession be sensitive to the needs for its services. Distribution for most efficient usefulness, special training for particular tasks, and coöperation for a complete service coverage must be continuously studied. To what extent are veterinarians apportioned most advantageously in relation to the service possible to be given? Are especially trained veterinarians available, will they be available, for institutional jobs, for food sanitary control, for handling of breeding problems, and other fields? Are there classes of animals receiving a minimum or no veterinary service?

For certain public health units, recommendations include a veterinarian in each such unit. The sanitary control of poultry slaughtering establishments presents a need for the especially trained. These two illustrations certainly emphasize the need for alertness.

STATISTICS

Statistical studies demonstrate that approximately 56 per cent of variability in the number of veterinarians by counties is associated with variability in factors studied. Thirty-five per cent of variability in veterinarians was shown to be associated with factors not yet determined.

A multiple regression was computed to study the effect of the following factors on the number of veterinarians by counties. These factors were:

1) Rural level of living index.*
   Following factors were computed on a per square mile basis.
2) Total value of livestock.
3) Retail trade, dollar volume.
4) Number of beef cattle.
5) Number of dairy cattle.
6) Number of swine.
7) Number of poultry.
8) Number of human population.
9) Number of horses.
10) Number of sheep.

*Hagood, M. J.: Rural Level of Living Indexes for Counties of the United States, 1940. U. S. D. A., Bu. of Agric. Econ., Washington, D. C., 1943.

Four or five of the factors studied seem to bear most weight and would probably be nearly as accurate as the entire group. Among those with which veterinarians seem most highly associated in states studied are rural level of living index, number of dairy cattle, number of swine, total value of livestock, and human population.

It must be emphasized that these studies were made on rural or near-rural areas. Counties having a population of more than 150 people per square mile would probably not fall in this category. Therefore, results are not applicable to urban or suburban communities.

Using the factors which are more closely associated, it will be possible to derive a workable prediction equation. Using all ten factors for Ohio, this equation would be:

Estimated Veterinarians per Square Mile

$X = +$	.7214	(Total value of livestock) per sq. mi.
$+$	290.1	(Rural level of living index)
$+$	.07707	(Retail trade) per sq. mi.
$-$	146.4	(Beef cattle) per sq. mi.
$+$	274.5	(Dairy cattle) per sq. mi.
$+$	91.03	(Swine) per sq. mi.
$-$	1.708	(Poultry) per sq. mi.
$+$	7.561	(Population) per sq. mi.
$-$	470.3	(Horses) per sq. mi.
$-$	27.99	(Sheep) per sq. mi.
$-24{,}370.$		

This prediction equation is unwieldy. One including the four or five most prominent factors will be much more satisfactory and probably sacrifice but little accuracy. Such a calculation remains to be completed.

Such an equation will furnish an estimated distribution of veterinarians per square mile by counties for the state under consideration. This estimated distribution can be compared with actual distribution to determine whether any county has more or less than its proportionate share of available veterinary service. Several states are being studied on the same basis as that employed for Ohio.

Another method of stating this estimate is in the expected number of square miles a veterinarian would service in a county. Formula for this would be:

$$\text{Estimated square miles per veterinarian} = \frac{1}{\bar{X}}$$

What is indicated if the veterinarians in a county are each servicing more square miles than this estimate? It indicates that the county is not supplied with its proportionate share of the veterinarians in the state or region.

RECOMMENDATIONS

1) That further studies be made, by state and federal officials, of the application of the plan for the employment of veterinary practitioners in such projects as tuberculosis and brucellosis eradication, with the thought of further developing the veterinary service. Also, that the plan for the so-called marginal or submarginal areas be given thought and study by these state and federal officials.

2) That further study of internships be made, relative to the advisability of including a period of internship as one of the requirements for license to practice.

3) That a comprehensive survey be made of breeding associations, "breeding rings," and artificial insemination, bringing together current methods and problems as they pertain to various parts of the United States and other countries. The report of this survey to be published in the *J.A.V.M.A.*

4) That continuous active helpful interest be maintained in the veteran veterinarian in his rela-

tion to the benefits offered by the so-called "G.I." bill and to his effort to establish or reëstablish himself in the activities of civilian life.

5) That since each member of our association is asked to make his individual contribution, he is entitled to share the advances of the profession. It is therefore recommended that a study be made to determine the best methods of bringing this about.

6) Since all are agreed that a complete veterinary service must be provided if the profession is to do its share in maintaining the health of our animal life, it is recommended that a comprehensive study of the factors affecting distribution of veterinarians be made.

7) Very closely associated with the problem of distribution of veterinary service is that of being aware of the needs for veterinarians. It is recommended that factors affecting the employment of veterinarians be comprehensively studied.

8) That studies be continued in an attempt to formulate an equation based upon but a few factors which may be used to predict the expected distribution of veterinary service.

9) That the administrative officers of the American Veterinary Medical Association: (1) assign each of the above recommendations to the proper group; and (2) determine the continuance of this committee.

s/H. L. FOUST, *Chairman*

J. A. BARGER	CHAS. A. MITCHELL
CLIFF D. CARPENTER	PETER OLAFSON
W. T. HARDY	V. C. PAUHLMAN
M. M. LEONARD	W. H. RISER
KENNETH G. MCKAY	L. L. SHOOK

National Board of Veterinary Examiners

The Committee on National Board of Veterinary Examiners, at the last annual meeting of this Association, presented to the Executive Board and the House of Representatives a plan which had previously been worked out by a committee of which Dr. L. M. Hurt served as chairman. This plan, in general, operates along the line of other national examining boards, such as medicine and dentistry.

In submitting this plan, the Committee wanted to be sure the delegates had some definite knowledge as to how a national board of veterinary examiners would operate. It is pointed out in that report that your committee feels that should the Association decide at this convention to set up a national board, the necessary funds be provided for a committee to get together and alter the plan to more nearly meet our present needs. Your committee feels that it should wait for action by the House of Representatives on last year's proposal before making any further recommendation.

s/ W. R. KRILL, *Chairman*

GEORGE BLANCHE	L. A. MERILLAT
R. A. KELSER	A. W. MILLER

[Action on the proposal for a National Board of Veterinary Examiners, contained in the 1944 report of this committee, and referred to in the foregoing report, was deferred until the next regular annual meeting of the Association.]

Buy Victory "E" Bonds

backed by the strongest and richest nation in the world — the United States of America!

Committee on Foods, AVMA—AAHA

The Committee has held three meetings since the last annual report (The JOURNAL, Nov., 1944: 370-371) was made. The first was held in New York on Oct. 3-4, 1944, and, in addition to routine business, included conferences with representatives of the Kellogg Company and the Albers Milling Company, whose dog foods were under test for acceptance by the Committee. It was the consensus of the Committee that a revised program of testing foods should be drafted for submission to the governing bodies of the coöperating associations, and that the present arrangements for carrying on the Committee's work be terminated as of Dec. 31, 1944. In order to terminate the food-testing work in progress under the supervision of Dr. M. L. Morris, Drs. J. B. Engle and L. A. Corwin were appointed to make an inventory and appraisal of the Committee's facilities at New Brunswick.

The second meeting was held in Chicago, Dec. 5, 1944. A revised program for the Committee's future operations was drafted and tentatively approved for submission to the coöperating associations at their next annual meetings. The special committee (Drs. Engle and Corwin) appointed at the previous meeting recommended that the physical facilities and equipment at New Brunswick be sold to Dr. Morris for the appraised valuation of $700.00. The recommendation was approved by the Committee. It was also agreed that the two manufacturers whose dog foods were under supervision should continue to use the temporary statement of acceptance until the two associations had taken action on the revised program; this action was considered allowable since the Committee's laboratory was just concluding tests on the two foods which would suffice until the proposed retest data could be obtained from independent laboratories under the proposed revised program (*see* attached).

It was also agreed that the services of Dr. M. L. Morris as executive secretary and technical consultant for the Committee should be terminated as of December 31, 1944, together with other laboratory and office personnel employed by the committee at New Brunswick.

The third meeting of the Committee was held in Washington on July 27, 1945. Dr. W. A. Hagan, chairman of the AVMA Executive Board was in Washington and attended by invitation; also Dr. M. L. Morris was present by invitation. The proposed revised program was reviewed and finally adopted with a few changes for submission to the coöperating associations. Estimates of costs (annual) were made of carrying out the work under the new plan as follows:

Central office expenses	$ 500.00
Committee expenses (meetings, etc.)	250.00
Consultant fees (for reviewing test data, etc)	250.00
Advisory council fees	100.00
Treasurer's office expenses	50.00
Treasurer's bond premium	12.50
Total estimated expense budget	$1,162.50

The Committee voted to recommend a service charge fee of $200 per food for reviewing and processing test data on foods submitted for approval (*see* attached).

It was voted that any food which meets the qualifications and tests required by the proposed program be granted the Seal of Approval of the coöperating associations.

The chairman was instructed to send copies of the proposed program to members of the Executive Board and House of Representatives of the AVMA

and to members of the Executive Board of the AAHA for study prior to the AVMA business session, Aug. 20-22, 1945. Appended to this report is the covering letter and program in question.

Under date of Feb. 17, 1945, an official audit and financial report was submitted by the Committee's auditor covering the period July 1, 1944, to Dec. 31, 1944. This was a final report covering the Committee's work as terminated of the latter date and showed a net worth (cash balance) on hand in the treasurer's hands of $4,641.71. A summary of the report follows:

RECEIPTS

Received from manufacturers for testing, inspection and supervision	$8,039.52

EXPENSES

Salaries, including executive secretary, secretary, kennel attendants, and auditor	$4,209.50	
Travel and conference expenses, executive secretary	344.03	
Travel, exhibit and conferences expenses, committee	426.77	
Office expenses, stationery, telephone, telegraph, postage, rent, etc.	408.78	
Operating expenses, kennel	745.53	
Chemical and biological assays	293.50	
Advisory scientific council	100.00	
Biochemical consultant	102.00	
Treasurer's office, expenses	75.88	
Depreciation on equipment	303.49	
Total expenses		$7,009.48
Net increase for period		1,030.04
Net worth beginning of period		3,611.67
Net worth as of December 31, 1944		$4,641.71

s/ J. G. HARDENBERGH, *Chairman*
L. A. CORWIN — S. W. HAIGLER
J. B. ENGLE — A. E. WIGHT

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Revised Program

From: Committee on Foods, AVMA-AAHA

To: Members, Executive Board, American Veterinary Medical Association, Delegates, House of Representatives, American Veterinary Medical Association, and Members, Executive Board, American Animal Hospital Association.

Re: Proposed Revised Program of Committee on Foods.

Herewith please find copy of Proposed Revised Program of Testing Dog Foods which has been drafted by the Committee and is now submitted to the coöperating associations for consideration and action.

This proposal is the result of several months' study by the Committee, including conferences with manufacturers whose foods have been under test. The purpose of the proposed revised program is to relieve the Committee of the responsibility involved in maintaining its own laboratory, testing and kennel facilities, including services of technical personnel, kennel attendants, test animals, equipment, etc., all of which has involved an annual budget of from $15,000 to $20,000 (*see* annual report, THE JOURNAL, Nov., 1944: 370-371).

Although the work of the Committee has always been self-supporting (from testing, inspection, and supervision fees assessed the manufacturers) and although the chemical and biological assays and experimental work conducted by the Committee and its technical staff have been of great value in developing valuable information in fundamentals of dog nutrition, yet the committee has felt for some time that a revision of the program should be instituted at the proper time. Hence, the attached proposal.

In brief, the proposal requires manufacturers, who wish to obtain the Seal of Approval, to submit the needed test data from reputable, independent laboratories instead of having their foods tested by the Committee as heretofore. The costs to the manufacturers for the required tests may be as great as, possibly greater than, they were when made by the Committee itself, but the Committee will be relieved of the detail and overhead of testing operations, which is a desirable development in our judgment.

Under the proposed program, the Committee recommends that a service charge of $200 be made for reviewing and processing test data on each food submitted for approval and for each retest that may be required to maintain the food under supervision. This service charge would, in time, take care of the greatly reduced necessary expenses of the Committee under the simplified program. For the present, the Committee has a cash balance of about $4,500 which is more than enough to cover estimated expenses for the next three years. By that time, it seems certain from present indications that enough foods will be under test to maintain the program without expense to the coöperating associations, as it has been so carried on for the past several years.

The Committee recommends favorable action on this revised program by the governing bodies of the two associations. The dog food testing work, although limited in scope to date, has proved fundamentally sound. There is a need for it. No other method exists by which the nutritional value of commercial dog foods can be determined by disinterested agencies for the guidance of the public and the veterinary profession. Over the years, the work of the Committee has received favorable recognition by government agencies and other organizations. It is believed that the American Veterinary Medical Association and American Animal Hospital Association should continue to sponsor this activity as a public service.

COMMITTEE ON FOODS

s/ J. G. HARDENBERGH, *Chairman*
L. A. CORWIN — S. W. HAIGLER
J. B. ENGLE — A. E. WIGHT

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Proposed Revised Program of Testing Dog Foods for the Seal of Approval of the Committee on Foods of the American Veterinary Medical Association and the American Animal Hospital Association

ADVISORY SCIENTIFIC COUNCIL

DR. R. ADAMS DUTCHER, Head of the Department of Agriculture and Biological Chemistry, Pennsylvania State College, State College, Pa.

DR. H. H. MITCHELL, Professor of Animal Nutrition, University of Illinois, Urbana, Ill.

DR. AGNES FAY MORGAN, Head of the Department of Home Economics, University of California, Berkeley, Calif.

DR. W. C. RUSSELL, Biochemist in Nutrition, Rutgers University, New Brunswick, N. J.

I. PURPOSE

The Committee on Foods of the American Veterinary Medical Association and the American Animal Hospital Association has been established for the purpose of identifying for the veterinarian and the dog owner foods which are tested chemically and

biologically, the quality of which is maintained through continued retesting, and the label and advertising claims of which are known to reflect the quality of the product. To this end the Committee on Foods considers dog foods and dog food advertising in the light of established knowledge or of the best authoritative opinion concerning dog foods and canine nutritional requirements. Dog foods that meet the requirements and maintain quality as prescribed in this program are considered eligible for the official emblem which may be used on labels and in advertising.

The program is also intended to encourage research and to place before the members of the veterinary profession and the public authentic information concerning the nutrition of the dog and information concerning dog foods which have been found to be satisfactory from the nutritional standpoint.

Supplementary products, such as vitamin carriers and mineral supplements do not come within the scope of this program.

II. APPROVAL OF DOG FOODS BY VETERINARY ASSOCIATIONS AND CONDITIONS UNDER WHICH IT MAY BE GRANTED

The Veterinary Associations, under conditions defined in the following paragraphs grant the privilege of displaying the official emblem on the containers of dog foods, and in related advertising, or in general educational advertising. The Seal will be granted only after the Committee on Foods has satisfied itself:

1) As to the wholesomeness and nutritional quality of the product;
2) That the label claims and advertising policy are in keeping with the known nutritional quality of the dog food;
3) That the manufacturer agrees to maintain the dog food and all advertising, subsequent to approval, in accord with these rules and regulations.

III. PROCEDURE

Manufacturers who desire to submit their products for examination and consideration for the Seal of Approval shall submit chemical and biological test data, obtained on market samples,* by laboratories independent of the producer, to the Committee on Foods.

1) Make application to the office of the Committee on Foods, 600 South Michigan Avenue, Chicago 5, Ill.

2) The manufacturer shall submit annually ten copies, on official forms, of chemical and biological test data on market samples obtained by private, university or industrial laboratories in no way associated with the manufacturer of the product submitted and signed by the person responsible for the data.
3) The data will be reviewed by the Committee on Foods.

If the data submitted by the manufacturer are not acceptable, the Committee on Foods will so advise the manufacturer who may submit such additional data as may be required or withdraw the application.

Labels.—Submit ten copies of the label or printed container as it appears on the market, or if the product is not yet on the market, ten copies of the proposed text for the label.

Advertising.—Submit five samples of each form of advertising copy as it is appearing at the time of execution of the application or if the product is not on the market, five copies of the proposed advertising copy.

*Except for new products, not marketed, data on manufacturer's samples will be considered.

Vitamin Claims.—Specific vitamin claims must be based on satisfactory evidence, obtained by direct chemical analysis or biological assay of market samples. Reports of assays must be complete enough to enable appraisal of the work and the deductions therefrom. It is important that an assay of the vitamin potency of a dog food be performed on samples which have been kept under conditions of storage comparable to those to which the food product is liable to be subjected. Vitamin claims on the label or in advertising are not acceptable unless the assays have been made on samples obtained in the open market, except in the case of vitamin D, when ingredient assay before processing will be allowed.

IV. CONDITIONS UNDER WHICH APPROVAL IS GRANTED

If a dog food is approved under this plan, and if labels and advertising copy submitted are acceptable, the manufacturer will be notified in writing by the Committee on Foods that the product has been approved.

V. DURATION OF APPROVAL

Approval of a dog food by the Associations shall continue until withdrawn by the Associations or until the food is withdrawn by the manufacturer.

VI. SIGNIFICANCE

Approval of a dog food signifies:

1) That a market sample of the dog food has been tested by a laboratory or laboratories in no way connected with the manufacturer.
2) That reports of tests and analyses have been examined by the Committee on Foods.
3) That the label claims and all advertising are subject to the approval of the Committee on Foods of the Veterinary Associations.

VII. RULES GOVERNING THE USE OF THE SEAL

1) The Seal shall be used only in association with a label or advertising material on which the name of the responsible manufacturer or distributor appears prominently.

2) The seal displayed on a label or advertisement, featuring in any manner both approved and non-approved dog foods, must be used or associated with the approved product only in such a manner that there can be no implication that the approval applies to the non-approved food or foods. No statement regarding approval may be used if there is any possibility of confusing or of incorrect inferences.

3) The Seal shall appear without comment on its significance unless such comment has been previously authorized by the Committee on Foods. The Committee will not approve any claim regarding the significance of the Seal which implies that the Associations specifically recommend a particular product in preference to some other product. The use of the phrase "recommended for" on labels or in advertising bearing the Seal is not permitted because it conveys the impression that the Associations recommend a particular food.

4) The Seal on the usual size of package or container shall be kept in proportion to other material on the label. In advertising matter, apart from the label, the Seal shall also be in such proportion to the dimension of the advertisement that it is readily recognizable and legible. Undue size giving greater prominence to the Seal than to other important features of the advertisement or detracting from the dignity of the Seal of the veterinary associations will not be permitted.

5) Should the product for any reason become non-approved, the privilege of the display of the seal will be revoked. In such a case the Seal must not

appear on any labels or advertising matter under preparation or to be issued. Old labels or advertising matter displaying the Seal must not be in circulation, in evidence, or before the public, six months subsequent to notification of the revocation.

VIII. RULES GOVERNING PACKAGE LABEL AND ADVERTISING

A food may bear a distinctive, fanciful or brand name which is not misleading or deceptive by implication. Names must not give misleading indications of the origin, character, composition, ingredients, or place of manufacture of the food concerned nor shall they suggest names of diseases, veterinarians, or medicinal uses.

Vitamin content is to be expressed in terms of accepted units or by weight if claims are made.

The terms "complete ration" and "maintenance ration" when used on labels or in advertising approved products are defined as follows:

A complete ration is a combination of ingredients which when fed to a normal animal as the only source of nourishment will provide satisfactorily for fertility of the male and female, gestation and lactation, normal growth from weaning to maturity without supplementary feeding, maintaining the normal weight of an adult animal whether working or at rest. A maintenance ration is a combination of ingredients formulated into a ration which, when fed to a normally exercised adult animal in a condition of sexual rest as the only source of nourishment, will provide satisfactorily for the nutritive requirements of the animal.

In general, names of diseases, symptoms of diseases, or of morbid conditions shall not be used on the package label or in advertising addressed to the public. Statements of established physiological or nutritional values of foods are permissable provided they do not in themselves, or by implication, misinform or mislead the purchaser. In such statements it is permissible to make factual reference to nutritional disturbances, e.g., to so-called deficiency diseases in statements concerning vitamins, proteins and minerals.

In general, words such as "pure" and words of similar import should be avoided, as they have a tendency to mislead.

Advertising intended solely for the veterinarian should bear in a conspicuous place the statement "For Veterinarians Only" or its equivalent. It may include disease names and information supported by sufficient evidence regarding the specific use of dog foods in the diet of the sick. Such advertising, however, shall not consider dog foods as medicine nor designate foods as therapeutic agents. Dog food advertising shall consider dog foods solely from the standpoint of providing nourishment for the well and for the sick or for preventing or correcting nutritional disorders.

IX. RULES GOVERNING LABELS AND ADVERTISING SUBSEQUENT TO APPROVAL

After approval, labels of approved dog foods shall not be changed in any manner without the approval of the Committee on Foods. If it is desired to change a label, five proofs of the proposed label shall be sent to the Committee on Foods which shall report promptly its decision to the manufacturer. If requested by the manufacturer such decision shall be reported to the manufacturer within ten days. Those responsible for the advertising of approved dog food shall familiarize themselves with the plan of the Committee on Foods.

X. INSPECTION OF PLANTS AND INGREDIENTS

1) The Committee reserves the right to make an inspection, when deemed necessary, of the plants in which approved foods are manufactured.

2) All ingredients employed in the manufacture of approved dog foods must be derived from sources satisfactory to the Committee on Foods.

XI. POLICY OF THE COMMITTEE ON FOODS

Notices of approval will be published in the official Journals of the approving Associations, in leaflets or pamphlets or other publications, any or all of them, as may be determined by the proper officers of the Associations. If a food bearing the Seal is disapproved for cause, an announcement to that effect will be published.

XII. APPROVED METHODS

A) Chemical Analysis—The methods of the Association of Official Agricultural Chemists should be used when applicable. However, other recognized methods may be used when those of the abovenamed association are not applicable or have not been developed for a given substance. Quantities of inorganic elements should be expressed in terms of the elements and not of the oxides.

Metabolizable energy (physiological energy) may be calculated from the chemical analysis by use of the factors 4, 9 and 4 calories per gram for protein, fat, and carbohydrate (nitrogen-free extract), respectively. The determinations of gross energy (heat of combustion) by means of the bomb calorimeter is also acceptable. In any report it should be stated which of these methods has been used.

The chemical analysis is to include in general: moisture, dry matter, protein, fat, ash or mineral matter, fiber, nitrogen-free extract, calcium and phosphorus. Literature references should be given for all methods other than those abovementioned of the above association. In cases of claims for specific minerals, salts or vitamins, then the report of analysis shall include such additional pertinent data.

B) Biological Assay—Protein Evaluation Test: (1) A test, designed to evaluate the protein quality of the ration for maintenance of adult dogs shall be conducted employing a technique described by Dr. James B. Allison of Rutgers University, New Brunswick, N. J.* This method is a modification of the Carl Thomas and H. H. Mitchell procedures.

2) Nutritional Value for Maintenance and Reproduction: Feeding tests shall be conducted using dogs. The purpose of these tests will be to determine the nutritional adequacy of the food when fed to adult dogs for maintenance, for gestation, for lactation, and for the growth and development of the suckling young; to ascertain whether label copy, including feeding directions, is sufficient to guide the purchaser in the proper and most efficient use of the product.

C) Alternate Methods—Alternate methods which are believed to give the required information will be considered by the Committee for approval.

*Literature reference will be given when available.

Sub-Committee on Veterinary Items National Formulary Committee

The report for 1944 covered the items of interest, and there is nothing new to report at this time.

"The National Formulary VIII" has been reported as being under way, and satisfactory progress is being made. It is anticipated that this volume will become available later in the year, and that it will become official in 1946.

All of the work in connection with veterinary

inclusions for this volume has been completed, and we now wait for the new edition (NF VIII) to be published and made available.

s/ H. D. BERGMAN, *Chairman*
R. F. BOURNE P. W. BURNS
C. F. CAIRY

Research Council

A meeting of the Council was held in Chicago on Aug. 22, 1944. A quorum was not present at the meeting held in Chicago on Dec. 5, 1944.

At the August meeting there was considerable discussion of the possibility of the release of penicillin by the government for veterinary use. The chairman was instructed by the Council to write the proper authorities in Washington with respect to the release of penicillin for veterinary use.

The Subcommittee on Veterinary Medicine, Division of Medical Sciences, National Research Council, of which Dr. Hallman, chairman of the Research Council, is a member, met in Washington in January and considered the question of the release of penicillin for veterinary research.

The fellowship project of the Research Council is still largely inactive. An appointment to a fellowship was made in August, but the appointee failed to accept the fellowship. The executive secretary of the AVMA now has under consideration ways whereby additional funds might be obtained for the fellowship project. The number applying for fellowships on the Council is at present small but more activity in this field is expected after the war.

The editorial function of the Research Council has been carried on as in the past and appears to be working satisfactorily.

s/H. H. DUKES, *Secretary*

Representatives

Representative to Horse and Mule Association of America

The twenty-fifth annual meeting of the Horse and Mule Association of America was held in the Palmer House, Chicago, Dec. 6, 1944. Considering transportation difficulties, there was a wonderful attendance.

For a quarter of a century past, this organization has had but one motive, and has worked along the line of promoting the horse and horse interests. The Association has grown, until now there are members in Mexico, several in the Argentine republic, a number in other South American countries, and several in New Zealand. These far-off members of our Association have been very appreciative of information they have received.

Each year at the association meeting, noted horsemen and veterinarians appear on the program; breeders exchange ideas; and the organization helps to keep alive the interests. Many subjects are discussed, and many copies of addresses by these men have been mailed to all members, as well as to outsiders.

Our nation needs work mares and foals. To emphasize this, the association printed over one hundred thousand copies of a booklet, carrying a relief map of the United States and an explanation of breeding in different parts of the country, with particular emphasis on the kind of horses raised in each area. This booklet also stressed the fact that since the beginning of the war, farmers have used horses and mules in a very effective way. Had it not been for the horses and mules on the American farm, we would not have had nearly the production we have had.

The census of 1940 (and there has not been much change since) showed that horses and mules do all the work on 53 per cent of the American farms, and part of the work on 18 per cent of the farms where tractors are used. Only about 4.5 per cent of all farms are dependent upon mechanical power alone.

Shortly after this was printed, the Association came out with another booklet, "Are You Gambling that Power Will Be Cheap Four Years from Now?" In this booklet, it was pointed out that a man should be looking ahead four or five years. Horse production is not an immediate thing. You cannot breed work animals and have them ready for maturity as you can the food producing animals.

Still another thirty-two page booklet, "Our Equine Friends," which is a condensed, concise description of all breeds of horses, is well illustrated. It gives, in condensed form, the origin, history, development, and characteristics of every breed of horse, the number of each breed registered in the past ten years, and the office addresses of the respective registration associations. One hundred thousand of these booklets were published, and copies of it were sent to leaders in every county in the United States. This booklet is worthy to be in the hands of every veterinarian and every horse lover.

Many of the agricultural colleges have taken up the teaching of handling, grooming, riding, and caring for horses. Also, in connection with the men in charge of the vocational agriculture courses, and with this organization cooperating, a manual, a motion picture, and a film script were gotten out on farm horse-shoeing, this to be shown in all schools of agriculture.

The plan of the coming year, decided by the board of directors, is to carry on with advertisements in the papers, carry the news stories, and bring in inquiries for the booklets, such as "Our Equine Friends."

There has been a decrease in horse production on our farms, due to the shortage of labor at the present time, but there is still a great interest being taken in the horse shows and the breeding of light horses, such as the walking horse, saddle horse, and palomino.

Three horses from Indiana were sent to Colombia, South America, this spring. They were the Percheron type. We believe after the war there will be quite a pick-up in the draft horse trade.

Our Indiana spring stallion shows were held in the different sections of the state, at the usual time, with good attendance.

Our state saddle horse show and round-up is planned for May 19-20, to be held in the Coliseum of the Indiana State Fair Grounds. This will be the American Legion benefit show.

This report has been called for before the really good shows get under way for this season. Although many shows have been canceled and many more may be, no doubt there still will be many

local shows held throughout the country this year.

The Horse and Mule Association is doing all in its power to keep the horse before the public, and is deserving of your coöperation.

s/T. A. SIGLER

Representative to American Association for the Advancement of Science

After several years of suspension of meetings, the Association met in Cleveland, Ohio, Sept. 11-16, 1944. The meeting was much better than anyone expected; the attendance was surprisingly large and accommodations were excellent.

Section G (botany) joined with Section O (agriculture) in a symposium on "Nutrition—Some Current Views," with papers by a microbiologist, a plant breeder, and a plant physiologist. Section N (medical science) held a symposium on "Dental Caries and Fluorine."

A joint symposium with the American Society of Parasitologists covered the subject of "Parasitology in Relation to the War." Doubt was expressed that the so-called tropical diseases will establish themselves in our country in the postwar period, even though a large number of returning soldiers are infected. A joint symposium with the Section on Engineering discussed "Aviation Medicine." Much of the work in this field cannot be made public at this time.

Charles Franklin Kettering, vice-president of General Motors Corporation, was elected president.

Because of the government policy with respect to holding meetings, there will probably be no further meetings of the A. A. A. S. for the year 1945.

s/ WARD GILTNER

Representative to Association of Honorary Consultants, Army Medical Library

The purpose for which the aforenamed Association is constituted is to promote the welfare of the Army Medical Library by consulting with and advising the director of the library concerning matters referred by him. Membership is limited to individuals appointed as honorary consultants by the Surgeon General of the Army upon recommendation by the director. There are three classes of membership: *active*, which shall not exceed 100 persons at any time; *corresponding*, which shall not exceed ten persons appointed from countries outside North America; and *inactive*, which shall consist of active members transferred to this category upon application or upon failure to attend annual meetings for three consecutive years.

The present consultants include some 70 persons representing the fields of human medicine and surgery, dentistry, veterinary medicine, public health, libraries both general and medical, the United States Army and Navy, and others. In addition to the undersigned, Brig. Gen. R. A. Kelser is, at present, the only other person representing veterinary science on the board.

The first general meeting of the consultants was held in Washington on October 5-6, 1944. At this meeting, the most important item was a summary of the findings and recommendations made by a survey committee which had been appointed several months previously to study the set-up and needs of the Army Medical Library. This survey was financed by the Rockefeller Foundation, was made under the auspices of the American Library Association, and was headed by Mr. Keyes D. Metcalf, director of Harvard University Library.

The survey report showed that a new building is an absolute necessity for the library, since the present building is 56 years old and is far from large enough; that the library has been starved financially for years, particularly in peace times; that, to assure continuation of development, there should be a trained professional librarian appointed as director, instead of assigning this duty every few years to an Army medical officer; that the indexing and cataloging work of the library should be almost completely revised, and that, in general, steps should be taken to assure the constant improvement of the library as the greatest medical library in the world.

The full report of the Survey Committee was published by the American Library Association, Chicago, in 1944, under the title, "The National Medical Library." As a result of the survey and its recommendations, it seems likely that most of the latter will be carried out. Plans for a new building have been drawn, a full-time director was appointed and took office on July 1, 1945, and a new chief of the Catalog Division has been named.

Veterinary interests and participation in, and active support of, the various functions of the Army Medical Library are, in my opinion, extremely important. At present, there seems to be promise of development of the veterinary section (now very modest and incomplete) if the profession individually and collectively evidences sufficient interest and support. Moreover, the library can and does offer services (references, research, microfilm, etc.) which cannot be duplicated or even found elsewhere. The JOURNAL has already made reference to some of the services offered by the library (see "The Current List of Medical Literature and the Veterinarian" by Florence Harden, Dec., 1944, p. 440; "Army Medical Library Requirements for Requests for Service," June, 1945, p. 335.)

Since the purpose of the Army Medical Library, as stated by Army Regulations, is "to select, purchase, index, catalog and preserve all literature pertaining to medicine *and the related sciences*" (italics ours), the library is making purchases and soliciting gifts to complete its holdings. It is reported that, at the present time, the holdings of books of importance to the history of veterinary medicine are small. For this reason, it is hoped that books in this field will be offered to the library. These offers should be in the form of a list of material available from prospective donors so that the library may choose the items needed in order to avoid duplication. Lists of offered titles should be addressed to Mr. Wyllis Eaton Wright, Librarian, Army Medical Library, 7th St. and Independence Ave., S.W., Washington 25, D. C.

The undersigned has been appointed to the Acquisitions Committee, a meeting of which was held in Washington on June 19, 1945. The Acquisitions Division of the library has made much progress during the past year, the staff alone having grown from three to eighteen people. Important problems affecting acquisitions have received attention and methods of procuring literature in the fields of medicine and surgery, and their specialities, in dentistry, veterinary medicine, nursing and public health, as well as historical material, are being developed.

It is recommended that veterinarians and veterinary organizations acquaint themselves fully with the objectives, needs, and services of the Army Medical Library and that they support in every way the program which is being formed to make the library of greatest possible value and usefulness.

s/ J. G. HARDENBERGH

Representative to Inter-Association Council on Animal Disease and Production

In the report of last year, a number of recommendations were made, and it is now possible to report action on some of these.

The sheep conservation program has been issued in two forms—one for farm flocks, the other for range flocks.

The swine conservation program has been completed, and is in press, with an uncertain status because of paper shortage.

The horse program has been completed, but has not been published, because there was no critical need for it.

UNIFORM REGULATIONS FOR INTERSTATE SHIPMENT

This problem was discussed at a meeting in August and again in December. The United States Live Stock Sanitary Association has given extensive consideration to the problem, and has a committee actively at work on it.

PROGRAM BEING CONSIDERED

The program, entitled "Protecting and Promoting the Welfare of the Livestock Industry," was favorably accepted during the annual meetings of the American Dairy Science Association, the Poultry Science Association, the American Veterinary Medical Association, and the American Society of Animal Production. The executive board of the United States Live Stock Sanitary Association examined the program, but considered that more time was necessary to review it in detail. Activation of the program on the part of the Council must await favorable action by this association.

NEW BREEDS OF ANIMALS

Further consideration was given to this question, but the information available was insufficient to permit preparation of definite recommendations.

RECOMMENDATIONS

1) That a comprehensive survey and review of the entire brucellosis problem be made, including all phases—dairy cattle, beef cattle, swine, and public health.

2) That programs of the symposium type be encouraged at the annual meetings of the various member organizations. Such programs provide an exchange of viewpoints by veterinarians, animal husbandmen, bacteriologists, and livestock sanitarians, and lead to a better understanding of the problems. Such discussions have been popular in meetings where they have been used.

A complete report of activities during the year is presented herewith.

s/R. C. KLUSSENDORF

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Third Annual Report of the Inter-Association Council on Animal Disease and Production

Several changes have occurred in the membership of the Council during the past year. Dr. W. E. Petersen was appointed in June, 1944, to represent the American Dairy Science Association. Dr. O. V. Brumley was appointed to represent the American Veterinary Medical Association, following Dr. H. W. Jakeman's resignation. Dr. Brumley's untimely death in January, 1945, left a vacancy until Dr. R. C. Klussendorf was appointed in March, 1945. Following the resignation of Dr. M. F. Welsh, in December, 1944, the United States Live Stock Sanitary Association appointed Dr. R. A. Hendershott to fill the unexpired term. Dr. W. V. Lambert was reappointed as representative of the American Society of Animal Production. Dr. L. E. Card continues to represent the Poultry Science Association.

Further progress has been made with regard to the animal production programs. As reported by Dr. Leinbach of the National Livestock Conservation Program, the sheep program was issued in two forms; one of which was applicable to farm flocks and the other to range flocks. The swine program was in press, but considerable difficulty was being encountered in obtaining paper and the services of artists. The horse program was completed, but the need for it was not critical so publication was being postponed.

The Council held meetings in August and December. The August meeting was preceded by attendance at a meeting of the Committee on Animal Health of the National Research Council. The latter group, in turn, was invited to attend the Council's meeting in order that the activities of the two groups could be coördinated. At the December meeting, Dr. Lambert was elected chairman and Dr. Card vice-chairman of the Council.

At their annual meeting in June, 1944, the American Dairy Science Association passed a resolution requesting the Council to consider the problems presented in the interstate shipment of livestock due to the lack of uniformity between states in the interpretation and application of the calfhood-vaccination plan for eliminating brucellosis from herds. This matter was discussed at both meetings of the Council. Dr. Ragsdale, president of the American Dairy Science Association, attended as a guest and participated in the discussions during the December meeting. In view of the fact that the United States Live Stock Sanitary Association has given extensive consideration to this problem, the Council transmitted a resolution to said association suggesting joint consideration by the livestock sanitarians and appropriate members of the animal production societies. Subsequently, the Council was informed that, during 1944, the United States Live Stock Sanitary Association had appointed a committee, including livestock producers, to study the rules and regulations governing the interstate movement of livestock. Regional meetings were held and progress toward more uniformity was made. The Council was advised that the problem is complicated, because the regulations in some states are established by legislative action, in others by an agricultural board, and in still others the regulations may be promulgated by the state livestock sanitary officer. A regional approach toward obtaining greater uniformity of laws and regulations was considered progress in the right direction because the varying incidence of brucellosis in cattle, the status of the state as to whether it was an importer or exporter of cattle, as well as the nature of the elimination program all influenced the problem.

Since brucellosis occurs in other animals as well as in cattle, and since programs are in operation for the control of brucellosis in cattle alone at this time, and in view of the fact that brucellosis is a definite public health problem, the Council passed and transmitted a resolution to the newly formed Agricultural Board of the National Research Council for their consideration, suggesting a comprehensive review of the situation.

The program, entitled "Protecting and Promoting the Welfare of the Livestock Industry," was favorably accepted during the annual meetings of the American Dairy Science Association, the Poultry Science Association, the American Veterinary Medical Association, and the American Society of Animal Production. The Executive Board of the United States Live Stock Sanitary Association examined the program, but considered that more time was necessary to review it in detail. The Council was advised that further consideration will be given the program at the next annual meeting. Activation of the program on the part

of the Council must await favorable consideration by the latter association.

Further consideration was given to the question of recognizing new breeds of animals, but the information available was insufficient to permit the preparation of definite recommendations. The Council considered that the encouragement of symposiums at the annual meetings of the various member associations would be desirable. It was pointed out that symposiums on mastitis were presented before the American Dairy Science Association and the United States Live Stock Sanitary Association, a symposium on bloat before the American Society of Animal Production, and one on poultry before the American Veterinary Medical Association. Such symposiums provide for an exchange of viewpoints by the animal husbandmen, veterinarians, and livestock sanitarians, and lead to a better understanding and appreciation of the various aspects of the problems.

Financial contributions to provide for secretarial assistance to the members of the Council were reported last year. Because of legal difficulties, it was not possible to open a bank account and make use of these funds until appropriate resolutions had been passed at a formal meeting. A bank account has been duly opened and the financial status of the Council is included in this report. The first check from the Poultry Science Association expired because a new treasurer was elected, so the contributions of this association are indicated among the contributions received. The American Dairy Science Association not only forwarded a contribution but authorized the payment of the expenses of their representative to one meeting each year. The Council now has some funds in reserve, because at the December meeting the representatives unanimously voted to refuse reimbursement for the expenses as reported in the second annual report, in order that funds would be available for emergency purposes.

FINANCIAL STATEMENT

Assets:

Balance brought forward	$147.82
Contributions:	
American Dairy Science Association	33.88
American Society of Animal Production	25.78
American Veterinary Medical Association	104.07
Poultry Science Association (2 years)	50.00
United States Live Stock Sanitary Association	25.00
Total	$386.55

Liabilities:

	HR.	CLERICAL	POSTAGE	TOTAL
W. V. Lambert	75	$56.25	$5.75	$62.00
L. E. Card	35	26.25	3.25	29.50
W. E. Petersen	30	22.50	2.86	25.36
R. A. Hendershott	25	18.75	2.43	21.18
R. C. Klussendorf	10	7.50	1.03	8.53
Secretary	105	78.75	8.34	87.09
Incidentals				15.25
Grand Total				$248.91
Balance on Hand				$137.64

Representative to National Livestock Conservation Program

Since my report of a year ago, the work of the National Livestock Conservation Program, under the chairmanship of Mr. Thos. E. Wilson, has continued. Some reorganization of the program was necessitated by the return to his former work of Dr. Fred H. Leinbach, who had served as director since June 1, 1943. Dr. Leinbach resumed his position as professor of animal husbandry and head of the department at the University of Maryland on Dec. 1, 1944. Mr. G. A. McDonald, former livestock specialist of the South Dakota State College Extension Service, was appointed in March, 1945, to follow the work initiated by Dr. Leinbach. This work will now largely be integrated with the 4-H Club program of the National Committee on Boys and Girls Club Work which, from the beginning, served to sponsor and conduct the livestock conservation program.

In June, 1944, an "Evaluation Meeting" was held in Chicago to review the work of the program and to consider the activities and responsibilities that should be provided for in the future. This meeting was attended by committee members, business men, agricultural and livestock journal editors, farm radio representatives, and others. Speakers included Chairman Thos. E. Wilson; Dr. Leinbach, "The Year's Balance Sheet"; E. L. Benton, "How We Launched the Michigan Program"; C. W. McDonald, "Livestock and Feed Conservation in Iowa"; Charles E. Snyder, "Fundamentals of a Sound Livestock and Dairy Program"; and J. G Hardenbergh, "Disease Control in Relation to Livestock Conservation."

As a result of the national program, some 20 states have organized and carried on active programs in which all agencies concerned with livestock conservation have participated. Several hundred thousand posters and leaflets have been furnished at cost, or free, on such subjects as "Save Feed by Saving Pigs," "Hog Cholera," "Nodular Worm Control," "Cattle Grubs," "Brucellosis in Cattle," "Mastitis," "Tuberculosis in Poultry," and "Prevent Bruises—Save Meat."

Since the principal objectives of the National Livestock Conservation Program as a wartime agency have been largely realized, it is anticipated that the work will be reorientated and a long-time program developed to carry on conservation work as part of the 4-H Club program. In so doing, however, it is hoped that the consultative coöperation between the various interested agencies will be continued. It is believed that the veterinary profession and veterinary organizations should stand ready to participate in and support any such development for the future.

S/ J. G. HARDENBERGH

Representative to the National Live Stock Loss Prevention Board

The tenth annual meeting of this group was held at the Palmer House in Chicago, Feb. 2, 1945, all principal officers being present, and the same were later reëlected.

The treasurer reported that 47 different companies or firms had contributed a total sum of $8,525 towards the work of the Board during the past year. Mr. Smith, general manager, and Messrs. Boyts, Cuff, Peck, and Dr. Spencer, regional managers, made reports dealing with the work of the Board.

Secretary Hardenbergh, in the absence of President Farquharson, told "How the Veterinarian Can Assist in the Prevention of Livestock Losses."

Others of those present talked upon related subjects.

The perplexing question, which had been hanging fire for some time, as to whether the National Live Stock Loss Prevention Board should sponsor the distribution of a so-called "first-aid kit" for livestock owners, was definitely decided in the negative at this meeting.

Prior to this, it will be recalled that, through procurement of Sears' Foundation funds, it was proposed by a regional manager of the N.L.S.L.P.B. that 200 kits be purchased at a cost of $40 each, filled with some 26 remedies, and placed in the hands of vocational agriculture teachers. The directors present voted unanimously against the proposition of the "kit."

This action of the directors was based upon the general belief that the "kit" in the hands of vocational agriculture teachers would encourage them to undertake practices in the treatment of livestock, which even the sponsors of the "kit" might later disapprove.

In the discussion which followed, it was made clear that this action on the part of the directors was in no wise aimed at any of the laudable objectives for which the Board was primarily founded.

The Board then adjourned subject to call of the Chairman.

s/ J. A. BARGER.

Representative to National Poultry Advisory Council

The Poultry Conservation Project of the National Poultry Advisory Council was concluded at a meeting of the Executive Committee in Chicago, on Dec. 14, 1944. Created in March, 1943, under the direction of Dr. Cliff D. Carpenter, the Council was instrumental in the dissemination of a united government-industry-profession program of reducing mortality in poultry. Several million pieces of literature were effectively distributed by industry and extension workers and considerable numbers of the council bulletins were also utilized by veterinarians.

As an outgrowth of the work of the Council, a Wartime Swine Industry Council was organized to aid hog producers in putting into effect practical and profitable methods of management, feeding, and disease control in the interests of more efficient hog production, conservation of feeds, and the nation's war food needs. This program was under the direction of Mr. Rollie Pemberton, of the Iowa State Department of Agriculture.

At the meeting of the Executive Committee of the Poultry Advisory Council on Deceember 14, it was voted to discontinue the Council and its program as of Dec. 31, 1944, since it was felt that it had accomplished what it set out to do.

s/ J. G. HARDENBERGH

Representative to the Division of Biology and Agriculture of the National Research Council

The Division met at the headquarters of the National Academy of Sciences and the National Research Council in Washington, D. C., on April 14, 1945. Representatives of the constituent societies of the Division were present. Chairman Griggs presided.

The Executive Committee of the Division made four recommendations to the Division, all of which were adopted at the meeting.

1) That the Division recommend to the Executive Board of the Council that its name be changed to the Division of Life Sciences. (The Executive Board has referred the question back to the Division.)

2) That the Division set up a Microbiological Board immediately and that it set up other boards to deal with various activities of the Division. These boards would be comparable to the Food and Nutrition Board and the Agricultural Board of the Division. (The Executive Board of the Council has approved in principle the setting up of a Microbiological Board. However, both the Executive Board and the chairman of the Division recognize that much preliminary work would have to be done before the proposed board could become effective. The chairman of the Division, Dr. Griggs, points out that the initiation of the work of the Agricultural Board has required the greater part of his time and thought during the past two years.)

3) That one person ordinarily may not be chairman of more than one committee of the Division. In the past, there has been a tendency to ask some men to assume too many chairmanships.

4) That the Division reconstitute a Committee on Research Publication. To this end, the chairman of the Division has called for nominations for such a committee.

Dr. M. H. Trytten, director of the Office of Scientific Personnel of the National Research Council, spoke at length on the manpower situation and the possibilities of preferential demobilization. The Division voted to set up a committee on personnel to prepare lists of faculty members and promising graduate students who ought to be sent back to their institutions as soon as possible. Your representative has made nominations from the field of veterinary medicine for this committee to be formed by the chairman.

Reports of various committees and boards of the Division were heard by the members.

s/H. H. DUKES

Representative to the Division of Medical Sciences of the National Research Council

The annual meeting of the Division of Medical Sciences of the National Research Council was tentatively scheduled for May 4, 1945. Because of recent rulings of the Office of Defense Transportation regarding conventions and organization meetings and the many uncertainties regarding the postwar functions of the Division of Medical Sciences, your representative was advised that the annual meeting had been cancelled.

s/WILLIAM H. FELDMAN

Representative to United States Pharmacopeial Convention XIII

The U. S. Pharmacopeial Convention did not hold a meeting during the past year, and therefore your delegate has no official report to submit.

s/ R. L. MUNDHENK

"SHIPPING FEVER" LOSSES CONTROLLED

Field results, as well as extensive experimental work, show that the most efficient and practical method for preventing losses from infections incident to shipment of cattle is the administration of relatively small dosage of

ANTI-HEMORRHAGIC SEPTICEMIA SERUM

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While it is generally recognized that the hemorrhagic septicemia organism plays an important part in the losses incident to shipment of cattle, many veterinary pathologists believe that a filterable virus is often the primary inciting cause of so-called "shipping fever." Because of this possibility, Lockhart Anti-Hemorrhagic Septicemia Serum is produced from mature bovines known to be immune to the various "shipping fevers." This "Plus Value" accounts for the superiority of the results obtained from its use.

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